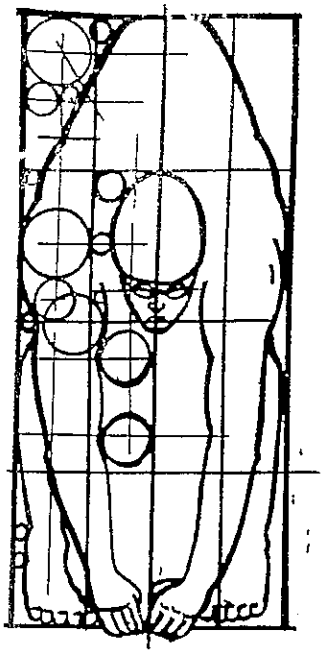


AUSTRALIAN MASTERS SWIMMING COACHES NEWSLETTER

VOLUME 4

NUMBER 3

Watching the Olympics is always a joy as we celebrate and agonise with the efforts of our younger swimming counterparts. As a coach I have been able to use the coverage to full advantage with my swimmers, both young and old. Every day I discussed the preceeding days events with my groups who were highly animated and motivated by what they saw. I also gave them tips on what to look for in the forthcoming finals.

I coincided the Olympic events with a week of intensive stroke work and was delighted at some of the astute comments of swimmers, relating what they were doing to the underwater shots they were seeing. Many of the Olympians were sent Herograms by my age-groupers.

This build up culminated in the final day's events and as before, our squad discussed some of the key points to look for. The fastest qualifiers in each event were all magnificant stylists, but the excitement centred around the men's 1500 F/s and whether the two Australians could bring home the double. I had seen both swim the heats and felt that of all the swimmers I had seen in the last week, Perkins and Housman were the most balanced and symmetrical. Above the water both had a relaxed arm recovery due to their high elbows and under water both employed a high elbow arm pull.

Other Olympians I saw noticeably dropped their elbow on their weaker, non-breathing arm. Not so our Aussie-duo. Perfectly even all the way.

Of particular note was the difference in the turns of Perkins and Housman. Housman has always been weak on his turns and sadly they had not improved. This was evident again in the finals In the early stages of the face Housman consistently drew half a body length ahead of Hoffman and every turn Hoffman came off the wall level with Housman. Out of interest I calculated that if Housman lost .3 or .4 every turn, over 29 turns, he was losing nearly 10 seconds.

My swimmers drew their own conclusions - that Housman was "out-turned" rather than "out-swum", that the race could have been closer between 1st and 2nd if more attention had been paid to detail. It proved a point.

To learn how to swim freestyle in a relaxed manner and with economy of energy turn to Page 9. "The Secret to Freestyle Speed" picks up where Bob Pritchard left off last issue.

To follow up on the more technical aspects and turn theory into practise, turn to Page 14. "Making the least of it" by Tom Lyndon describes some interesting drills used by coach Bill Boomer that will have you swimming like a champ.

In this issue we have articles relating to the benefits of swimming to certain health related issues. "Pregnancy and Swimming" (Page 6), "Swimming and Cholesterol" (Page 8) and "Exercise and Nerve Regeneration" (Page 19) should interest most readers. Page 20 has an article on "legal Expectations" that all coaches should read in this age of litigation. Page 22 has a review on the 4th World Masters Swimming Championships held in Indianapolis in July.

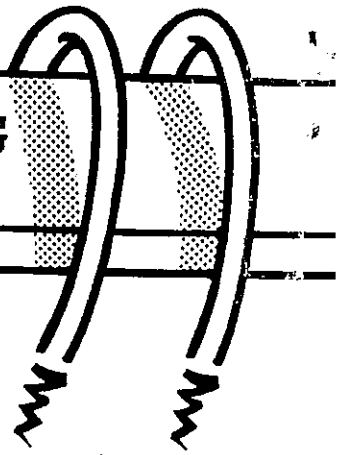
The National Video library is being well utilised by clubs and individuals and all monies go back into purchasing new videos. Page 29 reviews three new videos now available for hire.

Finally, I would like to thank the many contributions to this issue, from those who have written letters to the Club Profile on Page 5, and Ivan Wingate's article clearing up the many misconceptions about AUSSI.

I am off for three weeks holiday skiing in New Zealand. There is plenty to read while I am away.

Cheers Anita

AUSSI MASTERS SWIMMING



BY IVAN WINGATE
NATIONAL EXECUTIVE DIRECTOR
AUSSI MASTERS SWIMMING INC.

There is considerable misconception in some sporting circles about the purpose of AUSSI Masters Swimming, its activities and why it is structured the way it is. For a better understanding, we must review some of the history.

Adult swimming clubs have been operating in Australia since the early 1920's and some of them are still going strongly. Their objectives and membership criteria differ from those of "mainstream" swimming so there has been no reason for them to affiliate with the ASU or ASI. However, they are still swimming clubs and have provided a worthwhile contribution to the Australian Community.

Many of those who founded Masters Swimming in Australia in the early 1970's were active in the A.I.F. and Winter Swimming Associations, Leagues Swim Clubs and other adult Clubs at the time so would have been ineligible to join the ASU as the ASU rules prohibited swimming in non-ASU events. Further there was no provision for adult age group swimming within the ASU. The amateur rules at the time were such, that paid coaches, pool managers and attendants, swim teachers etc. were all considered to be "professional" therefore ineligible to join. Even footballers receiving match payments had to terminate their swimming careers. Many of the early masters swimmers were in the above categories.

A.U.S.S.I. was constituted as the Australian Union of Senior Swimmers International in 1975 and in 1977 was officially recognised and validated by the A.S.U. (Amateur Swimming Union of Australia). In 1985 when the A.S.U. adopted the new constitution to become A.S.I. (Australian Swimming Inc.) and had provision for masters, AUSSI Masters Swimming became an affiliate.

The misconceptions mentioned above, are that AUSSI has been referred to as a break-away group and that we are "professionals". On the latter point, it is somewhat ironic today as ASI now offers cash prizes for winning races whereas AUSSI does not.

AUSSI is not a break-away group, but does want to manage its own affairs and remain autonomous. Throughout the world, masters swimming is administered entirely by practising masters swimmers, and we believe that it is imperative that this continues. There are a number of examples of senior administrators from non-masters background in positions of power wanting to direct our activities away from the objectives of Masters.

We believe that we are in touch with our membership and provide programs for their needs. Swimming in races is only one of a number of programs we offer, and for most, it is only a measuring device within their overall fitness program. Also, they see it as a lot of fun. There is however, a large percentage of the membership who regard the race as their sole objective - just like "mainstream" swimming, so we cater for top level competition too. As a U.S. Masters swimmer recently put it:

"It's people having fun, being fit and seeing how they do..."

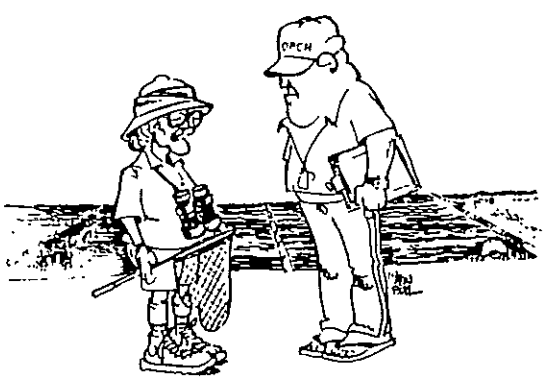
Another misconception is understanding why AUSSI conducts its own coaching accreditation courses and officials training.

Whilst the elite adult swimmer performs similarly to an elite young swimmer and can be trained in much the same way, the other 95% of our membership cannot. At the best, most swim only three times a week and there are many who swim only once. Coaching techniques designed for ten sessions a week are therefore unsuitable. Taking it to the extreme, an 80 year old is different from a 10 year old. Our Level 1M (Masters) supplementary course i.e. for ASI accredited coaches to coach Masters, has a ten hour theory component to cover the differences in coaching adults compared with children.

For the majority of our Swim Meets, we use our own Officials. In the main, they are not formally trained, so we have developed our own officials accreditation scheme. Again, there are differences from the procedure adopted by ASI. Because we run far fewer meets, our people cannot achieve the practical hours required by ASI. Further, our conduct of meet procedures are different and we have modified swimming rules (instigated by us and now adopted by FINA). We feel that it is responsible for us to develop our own officials, particularly with the demands placed on the ASI people.

Our recent survey showed that 43% of our membership had not swum competitively as a child. We therefore have a number of "non-racing" activities such as the "Aerobic Trophy", "Awards" scheme and "Super Sets" which are not conducted by ASI. We are presently considering introducing Life Saving as an activity.

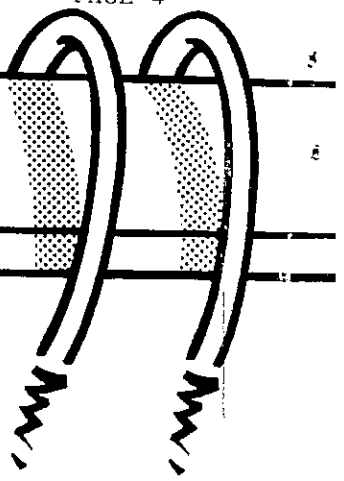
We trust that the above gives a better insight to the culture of AUSSI Masters Swimming.



"ARE YOU THE GENTLEMAN WHO IS LOOKING FOR A BUTTERFLIER?"

"...SELLING FAKE I.D AT THE MASTERS MEET, YOUR HONOR. SOME FOLKS MOVED UP TWO OR THREE AGE GROUPS."

THE GUIDE TO GOING HAIRLESS



PURPOSE:
Gain increased total body "hyperkinesthetic" tactility in water. We remove several epidermal layers as well as all body hair on most areas of the body exposed to water. Not only is body drag decreased by hair removal, but also dendrital sensitivity is greatly enhanced. The argument of whether shaving is "more physical or psychological" is ludicrous. Shaving enables a swimmer to swim faster, physically.

TOYS:
Electric Barber-type Shears
16-20 Single Edge Razors
Ice Bucket
Towels
Can of Regular Shaving Creme (for head, armpit & back only)

METHOD:
1. Shave all body areas where hair is thick and/or long with the electric barber shears.
2. Fill bathtub as full as possible with warm/hot water.
3. Wear T-shirt or towel over shoulders. (Remember that through water, one looses body heat 25 times quicker through air of the same temperature.)
4. Immerse lower body in tub and begin shaving hair off legs with fresh razor. Put pressure on razor and go against the grain of hair growth. (4 Razors) (Don't forget the top of your feet!)
5. Remember while you are in the tub shaving, that you are becoming dehydrated. Drink at least 20 oz of COOL WATER during the 2-4 hours it takes you to complete your shave. Work slowly and methodically. If you get tired or sore, take a break.
6. After legs, lay back in tub and shave stomach and chest areas. (4 Razors)
7. Put on a T-shirt. Submerge hands and arms, shaving all of the hair off back of hands and arms as high as you can reach. (4 Razors)
8. Dry off and put on sweatsuit bottoms and socks.
9. Lather armpit area and shave carefully! Use mirror. (2 Razors)
10. Fill ice bucket with warm water and have roommate dry shave or apply shaving creme to your back and shoulders, shaving small sections at a time. (4 Razors)

DO NOTS:
1. Do not use "Nair" or other hair removal products.
2. Do not use mentholated shaving creme.
3. Do not use double edged razors.
4. Do not continue shaving with a dull razor, keep it sharp.
5. Do not allow hair to become wedged in the razor, tap the razor head firmly after a couple of strokes.
6. Do not get chilled or cold.
7. Do not worry about cutting yourself, it is going to happen!
8. Do not forget to bring a few razors to the pool during the meet to dry shave from time to time.
9. Do not be a wimp. Do not use Vaseline, hand creme or face lotion until after the meet!!!!!!

• If you do what you've always done, you'll get what you've always got •

DRUGS IN SPORT

ARTICLE 1.

The following outline i based on the Internationa Olympic Committee list c drug categories. As tim passes and newer drugs ar developed they ma so b added.

In this first article I will give a outline of the banne categories and then i future articles detail th specific drugs a little mor closely.

AUSSI swimmers may be little dismayed to find tha some of the classes c drugs, particularly the beta blockers and diuretic (commonly used for hea conditions) are banne substances. Please do nc stop taking thes medications if you are o them for they are onl banned in certai vent and not subject to swimmin restrictions.

Veterinary product particulary steroids, ar often used to enhanc performance by athletes bu they are banned and ar readily detected in urin drug tests.

CLASSES OF BANNED DRUGS

A. STIMULANTS
B. NARCOTICS (som pain killers)
C. ANABOLIC STEROIDS
D. BETA-BLOCKERS
E. DIURETICS
F. SPECIAL HORMONES (nc menopause drugs)

CONT. PAGE 8

VIDEO REVIEW

The following videos are new to the AUSSI Video Library and are now available for hire (see page 28).

- AUSSI WORKSHOP - "Tailoring a Program"

A coaching seminar with Anita Killmier. This valuable resource has been produced by AUSSI Tasmania (Inc) on Anita's visit in 1991. This lecture is designed to give swimmers a better understanding of why they train the way they do, and if they are not going about their training in a planned manner, to give them an idea of how to go about planning an individualised program to suit themselves.

Some swimmers are self coached. Some swimmers train at times which do not fit in with club times. Yet others are unable to attend club training sessions on a regular basis. These swimmers all need to have an idea of what to do if they need to work on their own.

Topics include - What is physical fitness?
- The energy systems and how to train them.
- Planning a season
- Flexibility.

A booklet has also been produced that goes with the video to enable the viewer to follow the dialogue more closely and see first hand the diagrams and charts that Anita showed.

This well produced package is a credit to the Tasmanian Branch for capitolising on Anita's visit. It is suitable for all swimmers and coaches.

- "YOUR BACKYARD SWIMMING POOL IS YOUR HOME FITNESS CENTRE"

Produced by the United States Water Fitness Association Inc. this is basically a step by step Aquarobics program. Is suitable for coaches who may want to spice up their workouts, for people rehabilitating from injury or for those who wish to utilise their own pool more fully.

- "GIVE IT A GO"

This video has been developed by AUSSIE-ABLE - the Australian Sports Commission's program for people with disabilities in consultation with the Australian Coaching Council as part of the Coaching Athletes with Disabilities (CAD) scheme.

The video is fairly basic and is not swimming specific, but it does address issues (particularly with hearing or visually impaired athletes) that AUSSI coaches will relate to. 15 minutes.

CONTINUED FROM PAGE 27

SHERATON TOWNSVILLE SWIM 24 - WORLD RECORDS

CLUB	DATE	TOTAL DISTANCE (METERS)	
		25M POOL	50M POOL
TOWNSVILLE MASTERS	3/89	90275m	
MIAMI MASTERS	5/92		91550m
CRONULLA-SUTHERLAND MASTERS	6/92		94625m

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OFFICE USE ONLY: Feb.

May

Aug.

Nov.

"The doctor of the future will give no medicine, But will interest his patients in the care of the human frame, in diet, and in the cause and prevention of disease."

-Thomas Alva Edison

Dear Anita

Thank you for sending the latest edition of Australian Masters Swimming Coaches Newsletter to our AUSSI club.

In your editorial you talk about the need for sports research. You also list a number of research topics that AUSSI have identified as of interest to them. You ask that we pass the list on to anyone who may be able to pick up a topic.

The purpose of this letter is to let you know that I have been able to pass a copy of your Editorial and list of research topics to the Course Co-ordinator of the B.A. (Human Movement Studies) programme which is taught at the University where I work (University of Technology, Sydney). The Co-ordinator informed me that there is the possibility of some students doing studies on those or similar topics in the near future. The Co-ordinator is aware that you would like to know about such studies when they are undertaken.

Yours in swimming

Helen Rubin
Secretary, Ryde AUSSI

****

Dear Anita

Here is something for your newsletter. You will recall that my club, the Townsville Masters, conducted a 24 hr mixed relay in 1989 and then issued a challenge to Masters Clubs around the world. It was my idea and my club mates responded with enthusiasm.

We call it "Sheraton Townsville Swim 24" as it was sponsored by our Sheraton Hotel/Casino. It is a 24 hr long mixed Freestyle relay for 12 swimmers aged 500+. Our team swan 90275 meters in a 25m pool.

I think you already have seen all the rules. This year we have had two challenges. The first by Miami Masters and the second by Cronulla - Sutherland. Miami did 91550m in a 50m pool on 2/3 May 1992. Cronulla-Sutherland did 94625m in a 50m pool on 20/21 June 1992. A summary of these results is attached.

Each swimmer is limited to a total of 2 hrs but may do the time in up to 8 short swims. Six members of the Cronulla team exceeded 8000m in the 24 hrs.

Baden Green	9500m
Steven Yates	8975m
Peter Tibbitts	8950m
Kevin Neilson	8525m
Kim Welsh (a woman)	8050m
Peta Michael (a woman)	8000m

The oldest man was Jim Silva, 65 who did 7075m and the oldest woman was Helen Evans (61) who did 7400m. The other team members were : Robyn Green, Libby Hassall, Lee McCormack, Terry Noel.

I would be pleased if you will use this in your newsletter next issue. Clubs wanting to attempt the relay must write to me as convenor at the address below. As the Sheraton Hotel is the Naming Sponsor please use the full title : "Sheraton Townsville Swim 24" so that we do not breach our agreement with our Sponsors.

I am looking forward to the next issue of your Newsletter.

Yours truly

Brian Palmer
Convenor Sheraton Townsville Swim 24
Phone (077) 790734
24 Killara Street, Cranbrook, Queensland, 4814, Australia

CONTINUED ON PAGE 29

AUSSI RESOURCE CENTRE

A great way to get your club together for a social night/fundraiser is to have a vidoe night. Clubs who may not be able to swim all year round could use this to keep some continuity in their lay off period.

Items are available for the following hiring charges :

1 Video	1 Week $5	2 Weeks $8
2 Video's	1 Week $8	2 Weeks $12
3 Video's	1 Week $10	2 Weeks $15
1 Audio Tape	1 Week $3	2 Weeks $5
2 Audio Tape's	1 Week $5	2 Weeks $8

A bill will be forwarded to you with the goods (including postage) and payment must be sent with the items, on their return.

VIDEO'S

. Mark Tonelli tapes
. Aussi Coaching Seminar with Kirk Marks
. THE ATHLETIC INSTITUTE SWIMMING SERIES

1. Freestyle & Backstroke
2. Breaststroke & Butterfly
3. Starts, Turns & Progressive Drills

. AUSSI Workshop - Tailoring a Programme
. Give It A Go
. Stretching - Bob Anderson
. Food For Sport
. Masterstroke 1987
. Your Backyard Swimming Pool is your home fitness centre
. AUSKA - Swimming Strokes
. World Masters Games Seminar Series 1988
Featuring - Dr. Keith Bell
"Psychology in Master Swimming"
- Dr. Jim Miller
"A Coaches & Doctors Perspective of Swimming Injuries"
. Strength Training
. Visualisation
. Media Matters
. Exercise beats Athritis

AUDIO TAPE'S

. THE CREATIVE PERFORMANCE INSTITUTE

1. Guided Imagery for Racing Risk Taking & Racing
2. Guided Imagery for Training Commitment & Training Today Relaxation and Mental Rehearsal

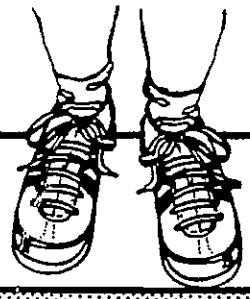
. AUSTRALIAN COACHES CONFERENCE SERIES 1990

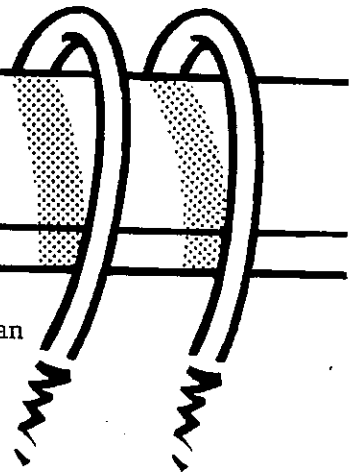
1. The Role of the National Coach In Australian Swimming - Don Talbot OBE
2. Integrating School and Club Swimming - Dick Shoulberg
3. Managerial Perspectives of Parent, Coach, Athlete Relationships - Professor Andrew Crouch
4. Blood Lactate Responses in Masters Swimmers During Active and Passive Recovery - Peter Reaburn
5. Utilisation of Time and Space for Swimming and Dryland Training - Dick Shoulberg
6. Physiological Considerations in Tapering Swimmers - David Pyne
7. Coaching Butterfliers - Doug Frost
8. Training and Racing the Individual Medley - Dick Shoulberg
9. The Importance of Teaching Good Technique - Lauie Lawrence
10. The AUSTSWIM Swimming Program - John Kilpatrick
11. Long Distance Swimming Training - Dick Campion
12. High Altitude Training-Ian Findlay.
13. Coaching the Elite Distance Swimmer - Ian Findlay.

AUSSI RESOURCE CENTRE - ORDER FORM

NAME _____
ADDRESS _____
_____
PHONE (HM) _____ (WK) _____
AUSSIE CLUB _____
MEMBERSHIP NO. _____
I REQUEST THE HIRE OF THE FOLLOWING ITEMS
1. _____
2. _____
3. _____
I WOULD LIKE TO HIRE THEM FOR A TOTAL OF __WKS
COMMENCING _____(DATE)
I AGREE TO RETURN THEM IN GOOD ORDER COMPLETE WITH MY CHEQUE FOR HIRE AND POSTAGE.
SIGNED _____
DATE _____

CHEQUES MUST BE MADE TO "AUSSI"
C/- 44 WARNCLIFFE ROAD
EAST IVANHOE VIC 3079





TEN KILOMETER TIME TRIALS

PENNY BOND - 1992

On Sunday 7 June 1992 only six weeks into her training program Penny swan a 10K time trial under club supervision with three stopwatches in the Willows 25m pool with anti-wave ropes in place.

Her time for the 10k was 2 hours 12 minutes 19.85 seconds averaging just over 1.19.00 per 100m. Apart from her first 100 (1.11) she swan very even lap times varying from 1.17 to 1.22.

No 10K swims were recorded in last years AUSSI Masters National Top Ten lists but the fastest 5K for the age group was over 69 minutes. Penny past the 5K at 65 min 24.97 a full four minutes faster, and went on to do the second 5K in just under 67 minutes, over 2 minutes faster.

mes for other distances along the way are pretty remarkable :

200m	2,29.81
400m	5.05.45
800m	10.16.50
1500m	19.20.77
3000m	39.01.85
1 hour	4575 meters
5000m	65.24.97
6000m	78.45.81
8000m	105.37.62
10000m	132.19.85

All these times will be submitted for this years AUSSI and World Top Ten.

Her average lap times of 1.19 per 100m compares favourably with Tracy Wickhams lap times in a 15K swim of 1.25 per 100m before she gave up training recently.

Eleven days later and without breaking her 65 - 70 K per week training schedule Penny did another time trial. This time in colder water in a 50m pool and without anti-wave ropes.

The purpose of this swim was to enter in the US Masters Annual Postal 10K swim in the 25-29 age group before she turns 30. Penny will swim it again later in the year as a 30 year old in a new age group so she can enter two age groups in the same year. Her time on this occasion was 2 hrs 15.53.92 and average of 1.21.5 per 100m.

The US MS World Postal 10K swim all time record for women aged 25-29 is held by S. Blaha at 2 hrs 22.40.00 and that has stood since 1985. The fastest time recorded in 1991 was by Christine Chichester at 2 hrs 26.31.00. In the next age group 30-34 the World USMS World Postal 10K at all time record is held by P. Matson also since 1985 at 2 hrs 17.19.08 and the best swim in 1991 by C. Trebisinete in 2 hrs 27.07.90.

So Penny has already broken the seven year old world record for her present age group in this event by just under seven minutes and clearly will repeat the performance for the next age group later this year.

Both these 10K swims will probably rate as the fastest times recorded in both the Australian Masters Long Course and Short Course Top Ten listings for 1991-92 for her age group and probably for any age group and both sexes. It should be noted that both these swims wer done whilst still feeding baby Nicole; without pausing in the heavy training schedule and only eleven days apart and only six and seven weeks after starting training.

BREASTSTROKE SWIMMING

At the recent AGM, the matter of disqualification in Breaststroke was raised for discussion. It was suggested that the rules of Breaststroke be included in "Splash". The following are the rules from the AUSSI Handbook.

"14. THE RULES OF SWIMMING:

2. BREASTSTROKE SWIMMING

a) From the beginning of the first arm stroke after the start and after each turn the body shall be kept on the breast and both shoulders shall be in line with the surface of the water.

b) All movements of the arms shall be simultaneous and in the same horizontal plane without alternating movement.

c) Up and or down movements of the legs or feet are not permitted throughout the swimming of the event, including the start and the turn.

d) The feet should be turned outwards in the backward movement. A flutter kick or dolphin kick is not permitted. Breaking the surface of the water with the feet shall not merit a disqualification unless followed by a dolphin kick.

e) Hands shall be pushed forward together from the breast and shall be brought back on or under the surface of the water, except at the start and the turns, the hands shall not be brought back beyond the hip line.

f) At each turn and upon the finish of the race, the touch shall be made with both hands simultaneously, either at, above or below the water level. The shoulders will remain in the horizontal plane.

g) During each complete cycle of one arm stroke and one leg kick some part of the head of the swimmer shall break the surface of the water except that after the start and after each turn the swimmer may take one arm stroke completely back to the legs and one kick wholly submerged before turning to the surface.

(Source: AUSSI Masters Swimming in Australia, Handbook, November, 1991.)

Tips on How To:

In her recently published book entitled "Mastering Swimming", Anita Killmier, the AUSSI National Coaching Director, provides some eighteen pages of information and practical advice on how to master Breaststroke. Anita has examined each action in breaststroke including the kick, arm action and pull, together with the integration of the whole stroke and the Breaststroke/butterfly turn.

Anita has provided an illustration of the method to be utilised in each aspect of the stroke and kick, drills to improve the action employed, a guide to identify and correct common errors as well as a pictorial guide to the correct timing of the stroke, kick and breathing. The book is highly recommended.

Anita's Book is entitled:
Killmier, A (ed), Mastering Swimming, Fraser Publications, Victoria, 1992.

(Where to purchase:
BRANCH OFFICES
Cost= $26.95 plus postage)

COACHING - QUT STYLE

QUT runs two main sessions per week - both at the home pool: Times for training are Wednesday 6.30pm -8.30pm and Sunday 9.00-11.00am.

I have structured swimmers into 3 categories - novice, intermediate and advanced, based on the level 1 Masters coaching scheme. Sessions are conducted under a build-up program to an endurance phase and then to speed and quality phase, ensuring correct stroke action at all times.

A variety of sets under each category are written on waterproof foils, so members can use them through the year when not at club sessions. This assists those with study commitment during the week.

Our members range from young 20 year olds to young 50 year olds. A small group of our members enjoy aerobic swims under the aerobic trophy scheme, and recently participated in the British One Hour Award and various lake and ocean swims. I have recently included the super sets developed by Anita Killmier, National Coaching Director, which is a very good help to aerobic build-up in our training sessions. I have just introduced some programs of Gaynor Corlis and members enjoy the change of style occasionally.

Pyramid training has become another alternative to my usual style and proves to be enjoyable because of its variety. Here is an example of what I might give to the intermediate group:

Stretching 5-10 min - then 200 freestyle, 100 freestyle, 75 freestyle, 50 freestyle, 25 freestyle, 25 freestyle (each of them with approximately 20 seconds rest intervals) then repeat all in reverse order. Or I start the 25 freestyle first and invert the above set by having the 2x200 concurrently in the middle with the same rest periods as before.

For those butterflyers who find training on the whole stroke tiresome or causes backaches, the drills using single arm are more easily coped with and I use them in the program in the following way. Twenty five metre distance using a single arm and the dolphin action, changing to the other arm for the next 25 metres. The resting arm remains resting outstretched in front of the head. The breathing pattern for this would be to the side on every, or every second stroke. This reduces the arching effect to the lower back, which can cause back troubles after training has finished.

I cannot stress how important it is to stretch before any training session, and remember to finish your session with a few more stretches whilst still in the pool, and get a good warm shower or a massage if available to help any of those other little aches and pains. Aches and pains should of course be monitored, and any which persist should be checked by your doctor.

To all Queensland Masters Swimmers - keep up the regular training, but be sure to enjoy the social interaction with your fellow club members whether it be at training, competition or social functions.

Robin Sweeney (QUT Coach)

Masters

FINA's Masters Rules begin with the following paragraph:

> The Masters program shall promote fitness, friendship and understanding through Swimming, Diving, Synchronized Swimming, Water Polo and Long Distance Swimming among those competitors with a minimum age limit of 25 years.

All aspects of this goal were evident in Indianapolis. Athletes were renewing friendships that began for some at Olympic Games years before, establishing new friendships that will endure for years to come, providing encouragement for one another regardless of nationality, and, in general, just having fun.

Masters is definitely unique in that FINA Rules allow men and women to compete on the same teams, whether it be in Swimming, Water Polo or Synchronized Swimming. Further, athletes come representing themselves or their clubs, not their country or federation. Masters competitions are divided into age categories, varying slightly in each discipline, as outlined within the FINA Masters Rules.

The eldest competitor, who learned to swim in 1898, was Tom Lane (USA), age 98 years. The average age varies slightly from discipline to discipline, ranging from 47 to 49 years. Tom swims twice a week, training for the last six to eight months for the World Masters Swimming Championships, his first, registering in five events. Congratulations to Tom for winning gold in all of his events; he presently holds 3 long course and 2 short course Masters World Records. The fastest time swum in the 50 metre Breaststroke in Indianapolis was 29.42, in the 30-34 age bracket, achieved by David Guthrie (USA).

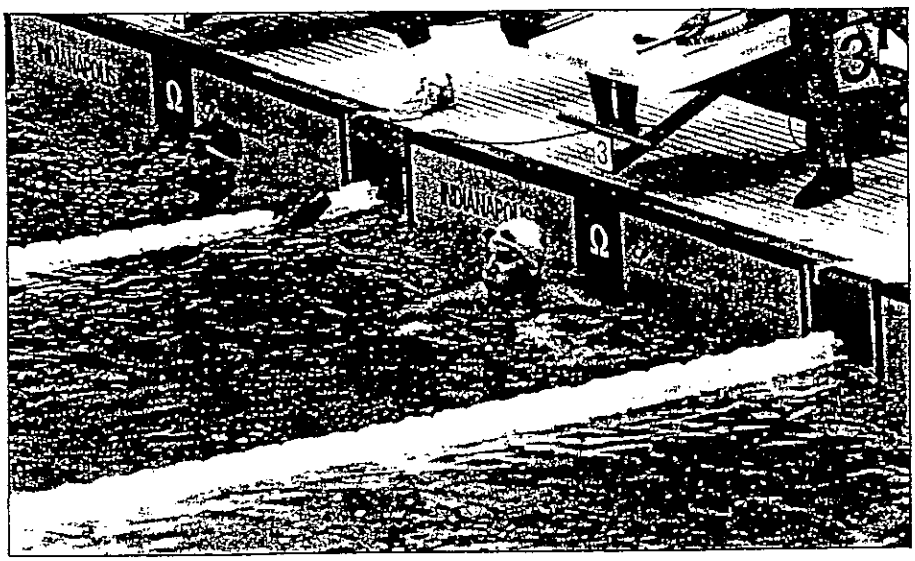
Great *mates*, Greta (62) and Neroli (31) Nixon (AUS), traveled to Indianapolis together. What makes their story different is that they are mother and daughter. Neroli, who has twice narrowly missed making Australia's Olympic team, teaches swimming. Greta was looking for something to do as she had retired, and Neroli suggested she teach also. Events worked to bring the two to Indianapolis, epitomizing what Masters is all about: a blend of youth and age. Greta comes to better her time and Neroli to win, and win she did, earning bronze in the 100 metre Breaststroke and 200 metre Butterfly.

The 5k Long Distance Swim was held at the Eagle Creek Reservoir a short distance from downtown Indianapolis. Water temperature of 21°C drew 345 athletes, age 25 to 79 years, into eight heats leaving the shore every two minutes. But while the swimmers alone made a good crowd, the organizers shuttled spectators to the venue by bus, making this event well attended.

Lynn Marshall (CAN), stroked her way to glory with a time of 1:02:51.8, winning gold in the women's 30-34 age group, and clocking the fastest time on the course to place first overall. Lynn was pleased with her swim, commenting "I went a little faster than I thought I would." A great job Lynn.

The finish line saw even more excitement when Gerry Rodrigues (29) and Robert Hudek (30) (both of the USA, although Gerry is originally from Trinidad) swam shoulder to shoulder to achieve their times of 1:03.00.0 and 1:03.01.4, respectively. Both won gold as they compete in different age groups.

The course continued to see action as the swimmers came across the finish line for another hour and one half. While many compete for medals, some swimmers aim at the challenge of finishing. The day was made complete with lunch on the shore for spectators and athletes alike.



It went down on record that Water Polo's motto was "To play water polo and have fun". Anyone who knows anything about Water Polo, and the fierce competitiveness of the discipline, knows that that statement is a contradiction in terms. But this is Masters, and Masters athletes have achieved the goal of blending "fitness, friendship and understanding" into their sport, even in the heat of battle.

Fifteen teams from Australia, Brazil, England, the Netherlands, Hungary, Venezuela, and the United States did battle over a period of three days, beginning competition at the Championships.

Tom Hoad, having been a member of Australia's Olympic teams in 1960, '64, '68 and '72, competed with his Australian teammates in Indianapolis. You may find Tom's name familiar as he headed the organizing committee for the VI World Championships held in January 1991 in Perth, Australia. Tom has stayed active in sport at the administrative as well as competitive levels. He competes with other Olympians on his Australian team.

Women teammates proved to be brave and strong. Erna Vahrmeyer-Loskam (NED) battles it out with the best of them and says it's nothing new to her. "I've done it since my youth, since I was about 12 years old but now I do it for fun." Women are able to use their small size as an advantage in moving more quickly than the men. The Netherlands team was made up of seven men and three women. Erna (51) is still quite the swimmer taking two golds in the 100 and 200 metre Breaststroke, silver in 50 metre Breaststroke, as well as two more silvers in 50 and 200 metre Butterfly, and a bronze in the 100 metre Butterfly.

Final standings in Water Polo were as follows:

30+ age bracket:

I	USA (LB)	4-2
II	HUN	4-2
III	USA (SB)	5-1

35+ age bracket:

I	USA (SF)	4-0-1
II	BRA (Rio)	3-3
III	USA (StL)	0-5

40+ age bracket:

I	USA (SF)	3-0
II	AUS	3-3
III	USA (LB)	2-3

Jerry Birmingham, England's team captain, told reporters "We knew that Water Polo would be very competitive here and we wanted to be a part of it. This is a good chance to make a statement as to how dedicated we are to this sport in our country." Jerry's team has their sights set on the European Championships in August.

Synchronized Swimmers Fred and Louise Wing (USA) are definitely above average; in age and ability. The husband and wife duet won silver in duet competition, 70-79 age bracket, while Louise earned gold in her solo competition.

Fred and Louise have been married for 41 years, only starting their swimming partnership in 1984 so Fred wouldn't get lonely waiting for Louise pool-side during performances; Louise began competing in 1975. Louise teaches synchro and plays the role of Fred's coach.

The Synchronized Swimming competitions drew athletes from Brazil, Canada, Japan, Switzerland, and the USA.

The IV World Masters Swimming Championships was the first competition held under the new Rules regarding age restrictions for Masters divers. The fact that the entry speed is 50 km/h off a 10 metre platform, 43 km/h off the 7.5 metre, and 35 km/h off the 5 metre platform, caused the FINA Medical Committee to study these factors and recommend restrictions at the last FINA General Congress in Perth, Australia, in January 1991, resulting in new Rules. Now, divers 70 years of age and over can compete only on the 5 metre platform. Divers 50-69 may compete from either the 5 or 7.5 metre platforms, and divers 25-49 may take the plunge from all three.

Over 150 divers from more than 10 countries gracefully left the various platforms and springboards at the Indiana University Natatorium marking dramatic growth in this discipline.

John Cress (USA) competed in the 1 and 3 metre springboard and the 10 metre platform competitions. His background in gymnastics gives his dives a distinctiveness, which he likes. "I like being different" he is quoted to say. Diving competitively since 1984, this was John's first World Masters Swimming Championships. "I came here wanting to win, but I also wanted to have some fun and I have. I've met some really good divers who are great people as well." The Masters attitude. John (76) placed 4th in his springboard events, and 5th in platform.

The competition is over now but the friendships and competition will continue. The memories of hugs and high-fives as well as the awards, disappointments and thrills will remain forever. Keep your training schedule and mark your calendar for Montreal in 1994 where the V Masters World Championships will take place. If you weren't in Indianapolis you missed a great deal; don't miss out in '94.

In addition to those mentioned above, over 90 new Masters World Records were set in Indianapolis. One such record was set by June Krauser, member of the FINA Masters Committee, in the 200 metre Butterfly, in the time of 3:42.61, 65-69 age group.

FINA Expands Lausanne Office

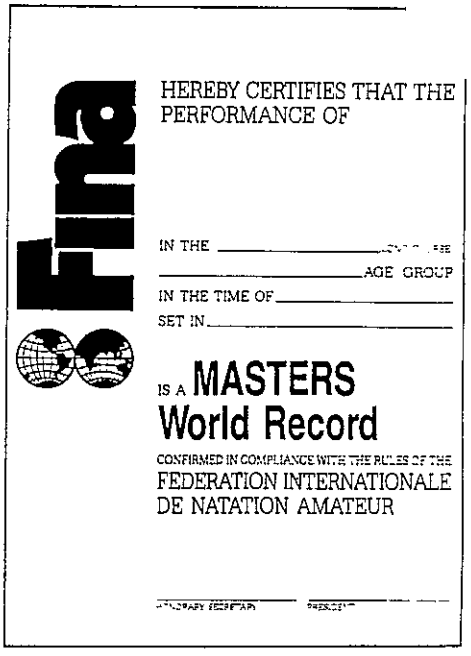
FINA is pleased to announce that it has expanded its staff at the FINA Permanent Office in Lausanne to adequately handle Masters.

In addition, Walt Reid (USA), whom many know, has agreed to produce World Ranking and manage the Masters World Records. Certificates for what were the current long and short course records have been produced and many were distributed in Indianapolis. All those that did not find their way to their owners will be mailed to the FINA Member federations. We ask for your understanding, however, as the Barcelona Olympics are upon us. It may be that the certificates will not be sent to the federations until some time this autumn. Certificates for new records will be produced and distributed to Member federations at the same time.

To obtain a complete listing of the Masters World Records please contact the FINA Permanent Office, avenue de Beaumont 9, 1012 Lausanne, Switzerland.

The comprehensive set of final results for each sport discipline of the IV Masters World Championships are available by sending a check or draft in the amount of US$14.00, drawn on a U.S. bank, to Heidi Neuburger, Administrator, IV World Masters Swimming Championships, 901 West New York Street, Room 204, Indianapolis, IN 46202, USA.

We print a sample of the Masters World Record certificate for your information:


Fina

HEREBY CERTIFIES THAT THE PERFORMANCE OF

IN THE _____ STROKE

_____ AGE GROUP

IN THE TIME OF _____

SET IN _____

IS A **MASTERS World Record**

CONFIRMED IN COMPLIANCE WITH THE RULES OF THE FEDERATION INTERNATIONALE DE NATATION AMATEUR

HONORARY SECRETARY PRESIDENT

FINA NEWS

16 July 1992 Volume XIX, No. 4

Federation Internationale de Natation Amateur

IV WORLD MASTERS SWIMMING CHAMPIONSHIPS 1992

FINA is pleased to dedicate this issue of *FINA News* to Masters: the discipline, the athlete, the experience.

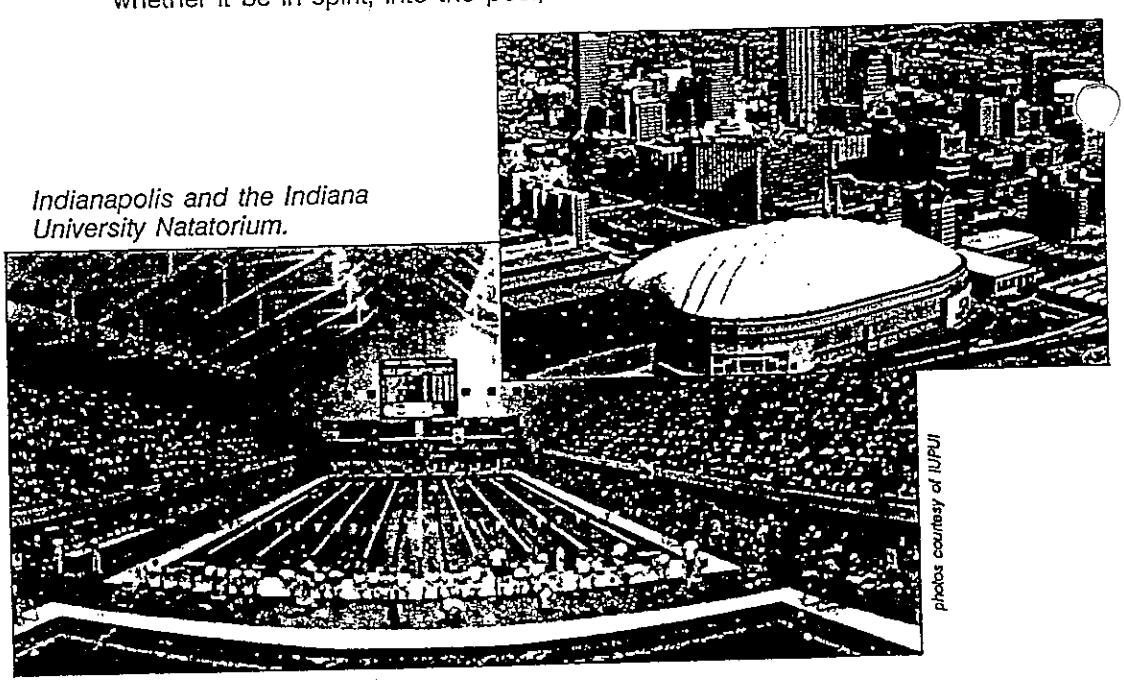
Masters, the discipline, is growing to new proportions as evidenced by the attendance at the IV World Masters Swimming Championships held 25 June-5 July 1992 in Indianapolis, Indiana, USA. Registration numbered more than 3000 athletes representing 45 countries.

President Mustapha Larfaoui (ALG) traveled to Indianapolis to attend the Opening Ceremony on 26 June. Also present were Ross E. Wales (USA), Honorary Secretary, and Klaas van de Pol (NED), Honorary Treasurer. FINA Vice President, D.L. Artie Shaw (NZL), was in Indianapolis for the duration of the Championships as Liaison to the FINA Masters Committee, all of whom were present for meetings and competition. Director of the FINA Permanent Office in Lausanne, Switzerland, Cornel Marculescu, was also in attendance.

Competition was held in Swimming, Diving, Water Polo, Synchronized Swimming and Long Distance Swimming. While Masters Swimming has always been popular (2400 athletes registered in Indianapolis) dramatic growth is being seen in Diving and Water Polo. Long Distance Swimming also proved popular with 345 entries on a 5k course. Synchronized Swimming is coming into its own with 128 competitors; growing in numbers and beauty.

Competition was held at the Indiana University Natatorium, one of the finest venues in the world. We extend a sincere thank you to the City of Indianapolis, Heidi Neuburger, Chairman of the Organizing Committee, United States Aquatic Sports and its constituent member, United States Masters Swimming.

FINA has been a presence in Masters since 1985, establishing the first Masters Committee in 1986. While we have watched Masters grow over the past seven years, FINA has renewed its dedication to promoting the Masters disciplines to new heights. We hope this issue of *FINA News* moves you, whether it be in spirit, into the pool, or both.



Indianapolis and the Indiana University Natatorium.

photos courtesy of IUPUI

Sport falls within the definition of 'service' or 'recreation' and in some states coaching and umpiring and specifically covered by the Acts.

Discrimination on the grounds of pregnancy can occur if the woman is treated unfavourably because she is pregnant. If for example team selection or omission is based on anything other than merit then the pregnant woman could allege the selection was discriminatory.

Fellow competitors cannot oppose a team on the basis that they are inhibited when playing against pregnant players.

Professional sporting women are covered by the laws which require all employers to ensure the safety of their employees. Employees are also responsible for the safety of colleagues and the general public.

Employers must determine whether an employed pregnant athlete is able to perform her work without endangering herself, the unborn child or others. In these circumstances the pregnancy is treated as a medical condition or like any other disability.

Pregnancy is a normal condition but society is still coming to terms with it. Clubs and competitors need to discuss these issues and make sure they have clear policies on how to limit their legal liabilities whilst ensuring pregnant women can enjoy their sport.

The Australian Sports Medicine Federation (ASMF) has recently established a women in sport committee to bring the issues that concern women engaged in sport to the attention of the sports medicine community.

The major achievements to date have been the publication of a series of pamphlets, designed to provide relevant information to athletes, coaches and general practitioners on topics including Women, Nutrition and Exercise; Strength Training for Women; Menstrual Function in Athletes; Exercise in Pregnancy and Exercise and Osteoporosis.

The Committee's current working policy on women's involvement in sport states:

Women of all ages should be encouraged to enjoy regular physical activity;

Children need to complete normal maturation by the age of 16, and activities which delay menarche beyond this should be discouraged;

Sporting activity should be coincident with regular menstruation, which is important for long-term health, fertility and bone integrity;

Female athletes with amenorrhoea should be counselled to remediate possible hormonal deficiency;

Menstruation does not preclude any sporting activity, although any individual may wish to avoid exercise because of her own symptons;

Active women need a well-balanced diet with attention to iron and calcium intake;

No women should be excluded from any sport merely on the basis of gender;

If you want to find out more information about Exercise and Pregnancy contact the Education Officer
National Sports Research Center
PO Box 176 Belconnen
ACT 2616
PH: (06) 2521554

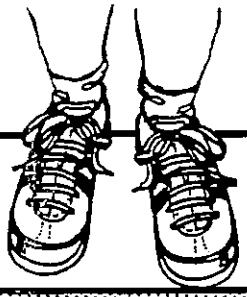
Women are capable of improving strength and fitness with appropriate training;

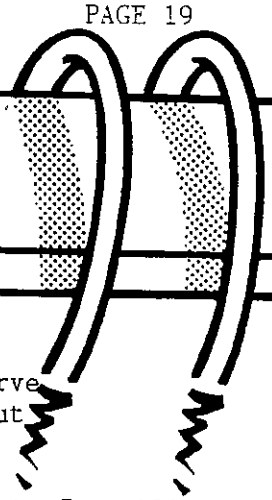
Women are capable of competing in all endurance events; and

Women tolerate altitude and heat at least as well as men.

An area of interest under the Committee's consideration at present, in association with the medical and legal communities, is the formulation o a policy statement on pregnant women participating in contact or collision sports.

For pamphlets and further information on the ASMF Medicine and Science for Women in Sport Committee, or issues related to sports medicine, contact the ASMF branch in your local state, or the Nationa Office at PO Box 897
BELCONNEN
ACT 2616





EXERCISE AND NERVE REGENERATION

Ordinarily when a nerve is severed it cannot repair itself like muscle tissue. The result is a paralysis of the function that the severed nerve controlled. However, partial recovery of function has been observed but only rarely.

One AUSSI member reports such a case. During a heart bypass operation in June 1990 the surgeon accidentally severed the right Phrenic nerve. This is the nerve that makes the diaphram work. The result was that his right side diaphram was paralysed. It was flaccid and in inhalation the diaphram was forced upwards into the lung space instead of pulling down in the normal way. Thus only about one fifth of the right lung was working or about a 40% loss of total lung capacity.

The member found that cutting off almost half of his air intake each breath played "Merry Hell" with his aerobic capacity. There were other complications from the surgery including Right Atrial Fibrolation which persisted for five months. This kept him out of the water as he was in and out of the intensive care ward all the time and tired at the least exertion.

When the heart went back to normal rythmn our AUSSI started to swim. Before the operation he had been a fairly competent swimmer usually gaining some top ten rankings particularly in the longer distance swimming the 5K in just over 90 minutes.

His first swim left him grabbing for the rope in panic gasping for breath at about the 17m mark. As a swimmer of forty years panic was a new experience for him. Nevertheless he kept trying. His Cardiologist had instructed him to exercise but to keep him heart rate down to 125 - 130 BPM.

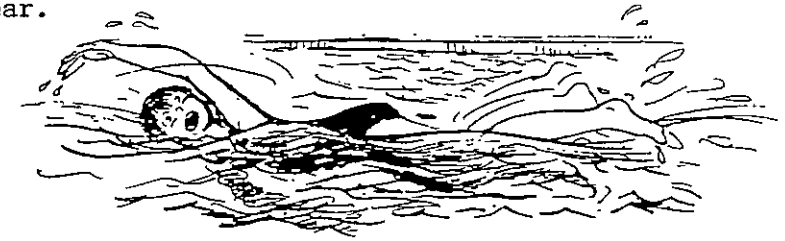
As the months went by he progressed to 100m but usually with a heart rate to high at 140 - 170 BPM. He did manage the 400m breaststroke in the 1990 - 91 National Awards again with a too high heart rate. He took to swimming with flippers all the time and by May 1991 had done a 2000m freestyle with the flippers and had completed the National Awards swims for the 1991 - 92 year in 400m F/s and 400m to 3000m Brst.

His swim rate for the freestyle with flippers is restricted to one minute per 50m. His inability to swim properly has been a psychological problem for him as he feels a bit ashamed to always be using the flippers. But his clubmates have kept encouraging him as AUSSIs do.

On a recent visit to the doctor a new chest X-ray revealed that his right lung had regained about half of the lost function. This caused a mild degree of amazement for the doctor who said that the Phrenic Nerve must be regenerating itself. In his opinion the constant regular deep breathing effort which was the result of daily one hour swimming sessions must some how have induced the severed nerve to grow and that our AUSSI swimmer should keep it up.

This could indicate that regular swimming can have a roll in the healing process after a trauma way beyond the simple benefit of regaining fitness.

Our swimmer now aims to stop using the flippers and will try to do the longer National Award freestyle swims next year.



Marianne Robinson is the editor of 'Sport and the Law' news which deals with legal problems and insurance in sport. She is the only female Managing Director of an insurance company in Australia and is involved with sport seminars. A lawyer, she is a member of the Australian Risk Management Association.

In this article she raises a number of issues associated with pregnant women and sport. She does not give definitive answers, but outlines the relevant facts. The Unit, the ASMF, members of the legal community and equal opportunity practitioners are currently looking into the issues of pregnant women and contact sports.

A MODERN PHENOMENA

Until very recently it was simply unheard of for pregnant women to continue their sporting activities.

Although changes in social attitude and advances in medicine have opened many doors, there are still unresolved questions about pregnancy and sport. Interest in this topic can be seen at sporting seminars, and enquiries to the Australian Sports Commission.

UNFAIR ADVANTAGE

Women have overcome medical and social hurdles in their search for sporting recognition. Now there is a new hurdle which so far has received little public debate but has been the subject of many private discussions.

The complaints are commonly heard in the body contact sports. Competitors say that they are reluctant to use the same degree of vigour against a pregnant woman because they fear causing an injury to the unborn child and are are asking what are their legal rights and obligations.

Liability for injuries to the Unborn Child

Pregnant women can be sued if their child can show they were negligent in caring for the unborn child.

A recent Australian case awarded over $3 million to a child injured in a car accident prior to birth. The mother argued on the grounds of public policy that a child should not be permitted to sue its mother for injuries caused to him\her before birth because its mother competed in sport or any other dangerous activity.

The lawyers argued that "every act or omission of the mother from conception to birth would be scrutinised". The court held that the mother was legally responsible for injuries caused by her negligence to her unborn child.

The courts said that a child can sue because there is a duty of care owed to the unborn child, and that this duty can be broken by prenatal neglect or carelessness causing injury.

There is no parental immunity. This means that a pregnant woman is personally responsible for her health and that of her unborn child.

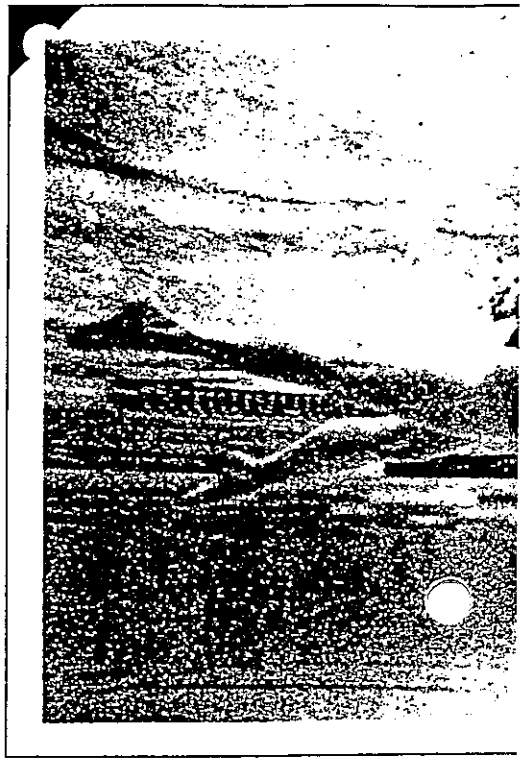
SUMMARY OF THE LAW

A child can sue for injuries caused negligently to it before it was born.

Both the mother and others have a duty of care to an unborn person. If there is an injury because of a breach of duty of care, the negligent person can be held responsible.

Rash conduct by a pregnant mother, such as taking unjustified risks or refusing to follow medical advice, may cause injury to the mother or her unborn child.

Sporting participants can sue each other for injuries caused during play with are due to reckless or grossly negligent conduct. An unborn child has the same rights. Sporting competitors can also be charged with a criminal offence such as assault or murder for on-field actions.



In America 48 women have now faced criminal prosecutions for taking unjustified risks with their lives whilst pregnant. Australian law does not have similar criminal laws but our Civil Courts are moving in this direction.

THE IMPLICATIONS FOR SPORT

Clubs, coaches and players can be held legally liable for injuries suffered during sporting contact as a result of their reckless or grossly negligent behaviour. This is usually behaviour which is outside the rules of the sport or where there has been reckless disregard for human life.

Coaches, trainers and other experts who give pregnant athletes advice on how to train during their pregnancy must be very careful that they are not placing themselves in the position of medical experts. They can face legal action for negligent advice.

DISCRIMINATION

Both State and Federal discrimination laws make it unlawful to discriminate against a woman on the basis of pregnancy.

constant practice schedule would be 40 x 100 freestyle straight on a constant interval. An example of a variable schedule would be to vary the swims within the class of movements. Stroke drills, sculling drills, alteration in speed, distance, and rest will provide such a schedule. The possibilities are unlimited and it helps to relieve boredom. It also gives the swimmer an opportunity to focus on specific aspects of their technique. On the macro level, one could look at the whole practice as it fits into the week's plan and that week's work, and how it fits into the month or season plan.

Still another perspective is the use of a random practices, blocked practice schedule in starts, turns, and IM work. What this means is that we would no longer do 10 starts or 10 turns consecutively. Instead, a random schedule of practice would have us do one start and one turn of one stroke and then a start and a turn of another stroke, and so on through all of the strokes, and then cycle back around. What this does is forces the swimmer to process the messages at a deeper level and create a greater effect on learning. Doing something consecutively, as in 10 or 20 starts, does not require the swimmer to engage in deep information processing after the first start, they merely repeat the same message. The same may be applied to transition turns and to all stroke transition in the IM.

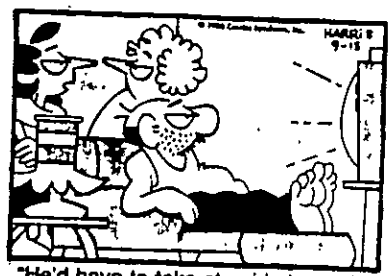
Now a word on the high vs. low yardage battle. Clearly this is not a cut and dry issue. There are individuals going 10-15,000 yards per day and they are not swimming fast, improving, or seemingly accomplishing much. Does this mean high yardage is bad? NO! That would be a hasty and erroneous conclusion. We must ask what kind of yardage they are doing, what kind of sets, what energy systems are they tapping, etc. It is very appealing to many individuals to hear that a short, intense workout will suffice and that we can do without early season LSD (long slow distance) base work. It would also be hasty and erroneous to buy into that program, especially, if you are average in motor ability and technical skills (the majority of Masters swimmers). Additionally, your competitive and training background may have a large impact on your training now. Did you swim as an age grouper, senior, and collegian? What kind of swimming/training history does your body have? Further, are you male or female (although there is a paucity of research on female swimmers, it seems clear they must train differently than men)? I refer you to a recent and excellent article in the Journal of Swimming Research, volume 7, #1, Spring 1991 by Councilman and Councilman entitled, "The residual effects of training". Although some parts of it may be hard to understand, I believe all Masters swimmers and coaches should read this article. I think it will explain more clearly why training, and especially Masters training, must be program based greatly on individual needs, according to the individual's goals and training history. Read it and see what you think.

In summary, I think it is important to keep the basic and well-founded training principles in mind and to be most cautious of "quick and easy" programs which advocate high intensity and little need for an endurance base. The sports domain is very susceptible to fads, trends, and quackery in a world where everyone seeks to get an edge on their opponent. Wanting to get an edge is fine, but as in all other areas of life, there are no free lunches.

If you're a swimmer, don't use the standard 220 minus your age times 65% formula for pulse rate workouts.

Women's Sports and Fitness, in their September issue, recommends recommends using 205 as the base rate. This is because since water cools you down quicker, your heart beats about 15 times less per minute.

Besides, they must be correct since they're women.



"He'd have to take steroids to get in shape for a game of chess."

THE SENIOR MASTER SWIMMER

Edward J. Shea
Southern Illinois University
Carbondale, Illinois

Part One - Characteristics

Swim Coaches who train Master swimmers whose ages extend over the full age-spectrum, will find it helpful to better understand the characteristics of the older swimmer (55+) and, consequently, adjustments to be made in their training.

Although imperceptible at ages 26-30, declining physiological changes occur. It is often difficult for many to accept this statement, yet research has highly supported it. Reference to Figures 1, 2, and 3 is likely to raise the questions, "What are the causes of decline in swimming performances with age?" and "How can they be positively influenced so that they occur to a less degree?".

Three categories of physiological functions are significant in the stress of training and competition which influence the aging-up of men and women. A knowledge of these will provide the coach a better understanding based on truth rather than accepting the statement so often heard from swimmers, "I'm just

getting old", or "It's age, I guess". The following data is well documented in research.

1. Muscular Strength - losses in muscular strength are less dramatic than those in cardiovascular functions. There is a 25%-30% decline between ages 30 and 70 in both men and women (Shock, 1977). Strength among men begins to decline at a greater rate after age 50, but at 60 the loss does not usually exceed 20%. Women's losses are somewhat greater than men's (DeVries, 1977). A moderate increase with age in percentages of slow muscle fibers is shown (Gollnick, 1972; Orlander, 1978). The two remaining factors responsible for changes in performance are highly significant.

2. Maximum Oxygen Uptake (MOU) or the amount of oxygen the blood can absorb from the lungs and transport to the body cells under high stress declines predictably. The blood of a resting 20 year old takes-up, on the average, 4 liters of oxygen per minute; whereas at 75, the rate is only 1.5 liters. In order to maintain a fast pace (which may require doubling the level of O) the Senior, under similar requirements, must move an excess of 50% more air in and out of the lungs (Shock, 1977). Because of decreased changes in lung capacity, the maximum breathing capacity of a 25 year old declines about 40% by age 80. The total functional area of the lungs also declines 25%-30% between the ages 30 and 70. The lungs cannot take in the amount of oxygen and less oxygenated blood is supplied to the blood cells (Smith and Gilligan, 1983).

3. Maximum Cardiac Output (MCO) refers to the amount of oxygenated blood the heart can pump on each contraction into the blood vessels which carry the oxygen to the body cells where there is a demand. MCO declines with age and places limits on the intensity of work and this results in slower performance. In comparison to the young adult, the MCO declines to about 30% in the 60-65 year old; the amount of blood pumped by a resting heart decreases from approximately 5 liters per minute in the 20 year old youth to 2 liters in 90 year olds; and under high stress, it may decrease from 35 liters per minute to a significantly reduced amount at age 75 (Timiras, 1972). It is well documented that the maximum heart-rate declines about 6% per decade, from 197 beats per minute at age 25 to 170 beat per minute at age 63 (Sidney and Shephard, 1978). The reduction in cardiac force and rate cause less blood to flow through the lungs. Shephard (1988) states the primary influence in decreasing performance is a slowing down of maximum heart rate.

Part II will provide some answers to the question, "Can these changes, which seem inevitable to occur with age, be positively influenced?".

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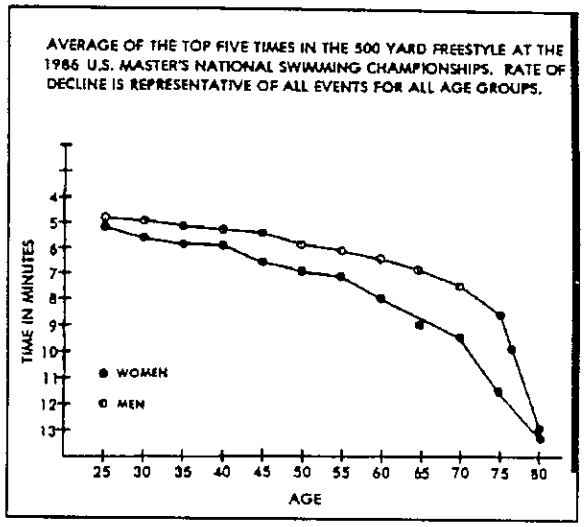
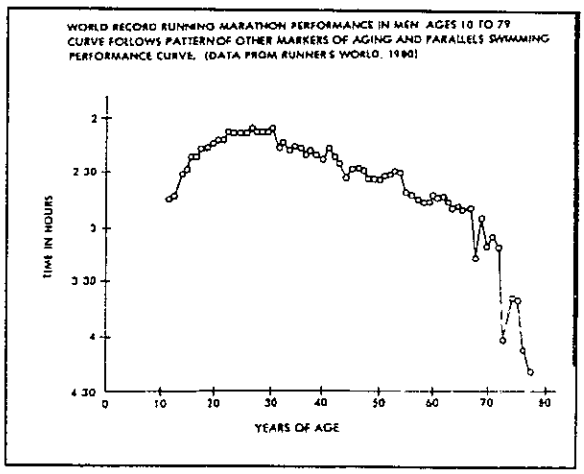
the 1994 World Masters Swim
in Montreal, CANADA
will be 2nd to 10th July





Percentage Improvement/Lack of Improvement In Record Performances By Individual Master Swimmers in Successive Age Divisions

Age Division	Total	Improvement	Lack of Improvement
Under 35 (25-29; 30-34)	10	60	40
Over 35 (to 50)	53	15	84
50 and Over	56	3.5	96.5

Cont. from Page 15

during the side-lying glide. Keep your eyes focused on the recovery hand throughout recovery and entry into water."

I'm sure you get the idea by now. Get creative yourself and figure out ways to become more sensitive to what's happening as you move through the water to make the least of it!

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their hands, what their body's trying to do to evade or create or if they're not even aware of that.' The Boomer program becomes a four-year sensitivity training session."

"Boomer has devoted most of his coaching energies to teaching his swimmers how to get the maximum distance-per-cycle, then training them to be efficient and comfortable within a wider range of cycle rates. This sets him apart from most of the coaching fraternity." After analyzing "every length, every lane, every race at the 1976 and 1984 Olympic trials...", Boomer concluded the selection of cycling rate and cycling distance correlated with performance. "... the critical difference... is the ability of the faster swimmers to achieve greater distance-per-cycle, *and maintaining it as they increased their cycling rate.*"

These drills, not unique with Boomer, are used by him more for their efficiency potentials- reducing drag- than for increasing horsepower.

Long Axis Drill: (freestyle and backstroke) "The swimmer seeks to hold an exaggerated side-lying position during each stroke cycle. The increased body roll also allows greater extension of the area (lengthening the axis) to front and back."

Short Axis Drill: (Breaststroke and Butterfly) "Great emphasis on the similarity of both during the catch phase of the stroke when the arms are stretching forward and making the outward scull. His common teaching points for both strokes are to initiate hip lift by 'pressing the T' or leaning the chest into the water while the hands stretch forward and to keep the face shallow to prevent the head from becoming 'unhinged' ".

Dog Paddle Blossom Drill: "Dog paddling with the head up, body extended and short crisp underwater strokes and recovery. Gradually lower the head, lengthen the stroke to full extension and *roll on the axis,* while keeping recovery underwater."

Weakside Single Arm Drill: Let the other arm trail at your side rather than extended in front. "Roll hips and shoulders up on both sides..."

Long Axis Combo Drill: Alternate two cycles of free and back. Remain on your side for a few kicks between stroke changes. "Focus on *leading the rotation on the axis with the hips.*"

Legs Crossed Drill: (Backstroke) "Pull with the legs crossed at the ankles, rotating the axis at the hips. Focus on very fine water pressure on the first sweep (down and out) to keep the body horizontal."

Recovery Delay Drill: (Backstroke) "On each armstroke, remain in an extended side-lying position for six to eight kicks with the recovery arm lifted 30 degrees from the water

What You Don't Know Could Hurt You

A Follow-up to the Chicago 1991 ASCA Clinic Masters Coaches and Swimmers Clinic - by Rebecca Rutt Leas

Rebecca Rutt Leas
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National Certified Health Education Specialist (CHES).
Successful age group, senior, college, and Masters swimmer.
Div. II Women's Swimming "National Coach of the Year" 1980,81,84.
6 Div. II National Team titles in 8 years at Clarion University.
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This article is a follow-up to my talk given at the ASCA World Coaches Clinic in Chicago, September 8, 1991. I will briefly summarize the topics covered in my talk and spend the remainder of this article discussing the items which I did not have time to address. The two areas to be covered in this issue are stroke technique and effective training. Stress management and diet and nutrition will be featured in a later issue.

Stroke, Starting and Turn Technique.

For the Masters swimmer, efficient and technically sound stroke technique is of the utmost importance. Currently, a battle rages in the swimming world over "yardage" (short vs. long). I believe this is a misdirected battle with too many false assumptions as baggage.One's success in competition is much more a result of the combination of motor ability and technical skill than of short vs. long yardage per se, although the scientific evidence lies heavily in favor of latter for ultra-elite levels of swimming. I will discuss that battle in a later section. Motor ability is genetically determined and is largely unmodified by practice or experience. Motor abilities particularly important to swimming are: multi-limb coordination, reaction time, movement speed, kinesthetic sensitivity, and physical proficiency. These may be thought of as the "hardware" a swimmer brings to the training/competitive setting. Technical skill, on the other hand, refers to one's proficiency at the task (strokes, starts, and turns) and is easily modified by practice. It is well-accepted that practice can compensate for deficiency in ability, but only to a point. What could be very detrimental (or disastrous),however, is a less genetically endowed individual (such as myself) taking the advice, offered by some, that I can abandon my early season training base and still be successful. There is no doubt that the individual who has superior motor abilities and technically good strokes can get away with training less than the majority of people and yet still produce outstanding results. This is why those of us with only

(Reprinted from the MACA Newsletter)

average to good motor abilities cannot follow the same training regimens as many who are "gifted" (such as past olympians) and realize the results they get from less than optimal yardage. Now I am not suggesting that all "gifted" people train this way, however, I know that if I were gifted and could win with less yardage, I'd probably do it! This may be a bit discouraging to some, but here is where persistent effort at perfecting one's stroke technique and dedication to a sound training program can have great pay offs and enable many of us to sometimes beat those who have greater ability but who are unwilling to train properly or upgrade techniques. Of course motor ability and stroke technique are complexly interrelated and as hard as someone may try to "feel" their stroke, a deficiency in kinesthetic sensitivity, physical proficiency, and reaction time may provide limitations on that individual's success at carving out an optimally efficient stroke. Still, improvements can always be made and one can thoroughly enjoy the challenges and rewards of Masters swimming at any age and any level. The bottom line here is that concentration on technique should be interwoven into all facets of our training program. Recognition of factors affecting technique (size of the hand, length of limbs, sex, age, strength, and temporal aspects of the stroke) is critical to the type of training we need to do or prescribe.

Effective Training. One helpful idea for training might be to assess one's weaknesses and then devote more time to the development of those areas. I will cite a real life example of a swimmer who experienced the results of working on a weak point in 1990-91. A female breaststroker developed a serious thigh injury that prevented her from swimming or kicking any breaststroke for over three months (October through December). This woman's stroke was very kick dominated and her times were in the 1:09 category for 100 yards and 2:30 for the 200 yards. Unable to kick, she pulled, and pulled, and pulled and pulled breaststroke, thus developing what was previously a very weak armstroke. She continued to nurse the injury throughout the season,since it was prone to re-injury. What was to come was a surprise to all. She proceeded to turn in lifetime best times in February and March.In her last meet, collegiate nationals, she ended up going 1:05.7 for the 100 breast and 2:23.8 for the 200 breast! Had she not ben so injured, she, her coach and others do not think she would have obtained those times. Perhaps there is a lot each of us could do to provide such improvement in our own performances, but it is like finding the hidden picture within the big picture and may require a new perspective on training and performance.

One such perspective might be the use of variable practice schedules as opposed to constant schedules. This refers to the organization of the practice on the micro level, such as an individual swim within a set, or a set within the whole practice. An example of a

ever, starts his hip rotation when his arm is only 15° below the surface of the water or *600%* sooner than Swimmer A! And this rotation begins just as B's power surge in his hand starts! In other words, Swimmer B is swimming with his hips! No wonder his peak power production is 242% longer than Swimmer A's. The hip muscles are so much bigger than the triceps that they can generate more force for a longer period without tiring. B's power comes from his hips, through his trunk, and down the arm to the hand. As a result, Swimmer A can only do the 50 (those triceps tire fast!), while Swimmer B is equally at home in the 50, 100 and 200. Table C summarizes the differences between the two swimmers.

In other words, if you wait to rotate your hips until *after* your insweep is finished, you will only be able to use your hips to power the outsweep, if at all. But if you start your hip rotation before your insweep, you will then be using your much larger hip muscles to power your arm and hand through the water. You will produce significant amounts of power during your whole stroke—not just the second half. To make sure you are using your hips to power your stroke, we recommend starting your hip rotation when your arm is just 15° below the surface of the water!

Hopefully, this analysis will strengthen in your mind the importance in analyzing and improving the performance of your engine before you even look at your propellers (hands and feet). Unless you begin your hip rotation when your arm is 15° below horizontal, you cannot use the power of your hips for the insweep. And your insweep should contribute at least half of your propulsive stroke power. If you don't begin your hip rotation at 15°, you are just swimming with your arms, and you are just swimming half a stroke.

Now does this mean you are slow? Not at all. Swimmer A is one of the fastest swimmers in the United States. But it *does* mean you are swimming *way* below your potential. Your hips and trunk—your biggest muscles—are just going along for the ride. "Dead meat" as one of our swimmers likes to say.

So engrave the numbers 60°/15° in your memory. Sixty degrees of hip rotation, starting when your arm is 15° below the horizon. Otherwise, your hip rotation will be "too little, too late."

In our next article, we will show you how to achieve 60°/15° with your "engine." It's not easy. For everyone reading this article, it will mean the most radical change in your stroke possible—using a completely new and unfamiliar set of muscles. But the result is mind-boggling. You will feel that your stroke is turbo-charged, while you will feel like you are doing less work! So, tune in next time and we'll show you how you can achieve 60°/15°.

Incidentally, for those of you who are interested in improving your stroke mechanics, we now have stroke analysts who travel throughout the United States working with individuals and teams. For further information, call us at 800-227-6629.

Ten Of The Many Ways To Avoid Losing

Since, as pressure mounts, there is such a tendency to avoid losing, I thought I might present you with some sure-fire, and not-so-sure-fire, ways to avoid losing. You, in turn, might want to pass them on to your athletes.

1 • **Don't play.** Clearly the surest-fire way to avoid defeat.

2 • **Don't try.** If you don't try, you might not win. But you can always say you would have won if you had tried.

3 • **Wreck the game.** If you totally wreck the game there can be no winner, but you can't lose. Even if you don't succeed in totally wrecking the game, but at least succeed in taking away the value of the contest, people will be less likely to notice whether you won or lost; and if by chance they do notice, they probably won't care.

4 • **Create problems.** This is one way to wreck the game. If you create enough of a problem, someone might stop the game. At the very least, if you are enough of a problem, then you will be removed from the game. If you are not playing, you can't lose. And, as a bonus, you get to say that you would have won if you had been permitted to stay in the game.

5 • **Don't play the entire game.** If you never play the whole game, you can always say you would have won if vou had played. And if you are real lucky, the game will never get completed. Then you can't lose.

6 • **Prearrange to have an excuse.** If you miss practice, get sick, lose your equipment or set up some other unsurmountable obstacle; no one can expect you to win, blame you for losing or think less of you when you do.

7 • **De-emphasize the contest.** If this particular game doesn't really count, then neither does losing it. You're safe. If you don't care about this one, you can't really lose; because if you cared, you would have prepared differently, tried harder, and surely won.

8 • **Keep others from winning.** The least you can do is keep others around you from winning. In that way, if you don't win, you won't look so bad in contrast. Drag others down. Put others down. Keep others down. Do all you can to prevent them from winning.

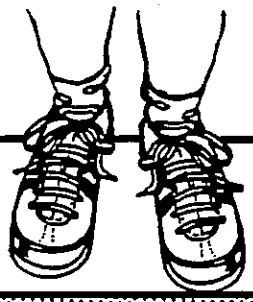
9 • **Play the nice guy.** If you are nice enough no one will tell anyone (including you) that you lost. Then you never have to deal with it.

10 • **Win.**

Which strategy should you teach your team to go for?

SO MANY REPEATS,

SO LITTLE TIME



FREESTYLE

by Tom Lyndon

MAKING THE LEAST OF IT

If you want to get dead serious about swimming fast, subscribe to *Swimming Technique*. You may need Statistics 101 as well as chemistry and physiology courses for some of the articles that take a plunge into the deep end leaving me thoroughly puzzled. Some sound like they have the answer without the scientific trappings but, to me, seem to come up short in the common sense category. Still, a few articles get through to me as having some lodes of good ideas.

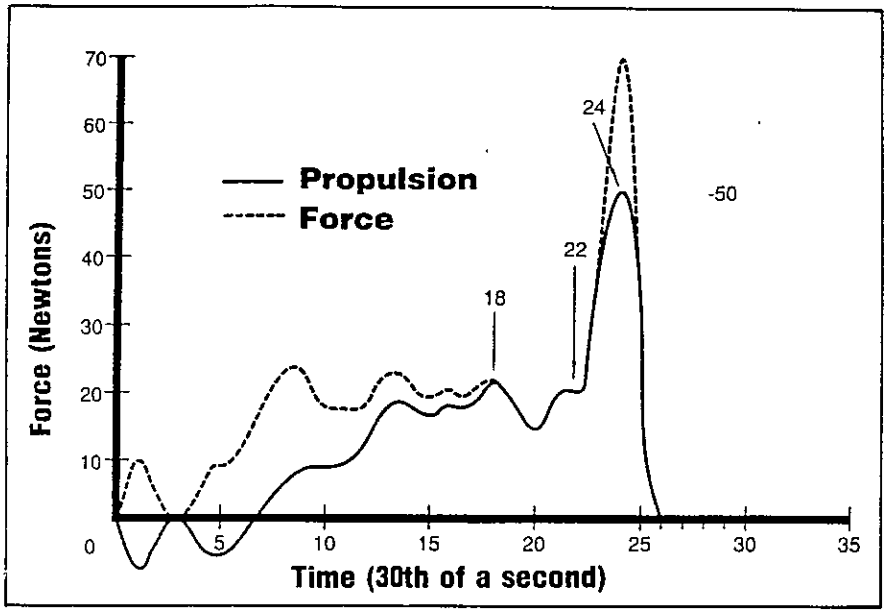
The University of Rochester has a most unusual (iconoclastic?) coach named Bill Boomer, who was written up in the May-July 1989 issue by Terry Laughlin (and in the July 1989 issue of *Swimming World*, too). "...his approach ...can be best understood in light of his conviction that the stopwatch...is too imprecise an instrument for measuring the way swimmers perform."

"My (Boomer's) basic concept of teaching swimming is shaping and positioning the body to reduce frontal resistance." There are three speed components: strength and conditioning, stroke technique, and reducing frontal resistance. He refers to the last as "vessel shaping", which Laughlin calls "staying out of your own way as you move through the water." "His swimmers spend a lot of time trying to increase their sensitivity to shaping their bodies for a cleaner ride.

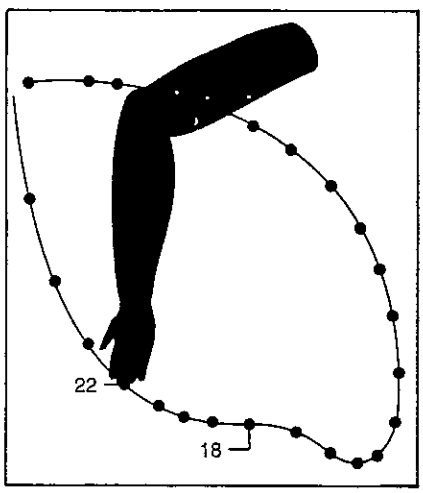
"Swimmers who are sensitive to vessel shaping acquire a distinctive skating motion in the freestyle stroke... This (rolling) technique might be compared to 'surfing' the body on ever so subtle divergences in water pressure and wave motion. Boomer teaches this sensitivity more with body positioning and shaping than with hand patterns. Put another way, think of the Ying and Yang relationship with Ying being the gains to be found from by eliminating impediments to slipping through the water and Yang being the things that produce force to move you ahead. Boomer calls the Ying concept "eliminating" and the Yang concept "creating" (Do I have traditional Ying and Yang reversed?)

"What's it like to swim for Boomer? 'When they first come to school, I ask them to swim down the pool as lyrically as they can. I don't time them, but I watch how the water flows over their body, how they use

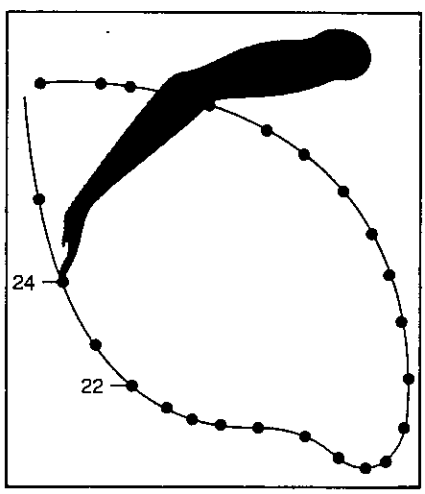
Freestyle Speed



Graph A



Drawing A1



Drawing A2

water by counting the number of frames. A's stroke is 26 frames long, or 26/30ths of a second, or about 5/6ths of a second.

The first seven frames show negative propulsion. This means that 7/26ths or 27 percent of the time Swimmer A is slowing himself down! Notice that he is exerting a lot of force during this time, however. He is working hard, but he is actually slowing himself down. This is typical of this type of swimmer—he works hard early on in his stroke. "Full of sound and fury—signifying nothing," as Shakespeare would say.

Next, we look at the percentage of times Swimmer A is generating propulsive force above 20 Newtons. In his profile, it is only three frames or just 12 percent of his stroke! Notice also that this swimmer generates a maximum propulsive force of 48 Newtons, while his maximal force output is a phenomenal 70 Newtons. This swimmer does indeed thrash through the water—with not a lot to show for it. How does he do it?

Let's take a look at his right arm and hand during his stroke cycle. What is he doing to produce so much force (48 Newtons) for so little time (12%) and so late (last 1/5th) of the stroke cycle?

Take a look at drawing A^1. It shows his right arm at frame 22 of his stroke cycle. He is swimming from left to right across the page. Like most elite swimmers, his forearm is internally rotated so that his palm faces outward. The circular line traces the path of his middle finger tip throughout the water. Each dot on the line indicates the position of his finger at each 1/30th of a second. Frame 22, as you can see from graph A, is the beginning of Swimmer A's power surge.

Illustration A^2 shows frame 24—or 1/15th of a second later (an eyeblink is 1/25th of a second, for comparison). What has happened during this time to account for the ineffectual explosion of force by Swimmer A?

First, you should know that A started his hip rotation at frame 18. As you can see on graph A, his hand force drops off at this point. Obviously, rotating his hips only interferes with his hands!

So what else is happening?

Well, as you can see, there *is* a change in his arm and forearm angles. His arm changes from 155° to 168° in relationship to his trunk, or 13° in total. Not a particularly great change, since the average change in degrees per frame is 7. Since we change the relationship to the body by using our shoulder muscles, chances are good this swimmer is not using his shoulder muscles to produce his propulsion.

But look at his forearm. Between frame 22 and 24, the elbow opens from 120° to 145°, or 25° in just 1/15th of a second. This *is* a significant change since the forearm was held at 90° to the arm during insweep. Since this is the only significant change to occur during frames 22 through 24, we can safely conclude that Swimmer A produces his propulsion by snapping open his elbow at the back end of his stroke. What muscles do you use for this? The answer is the triceps. This swimmer is swimming with his triceps!

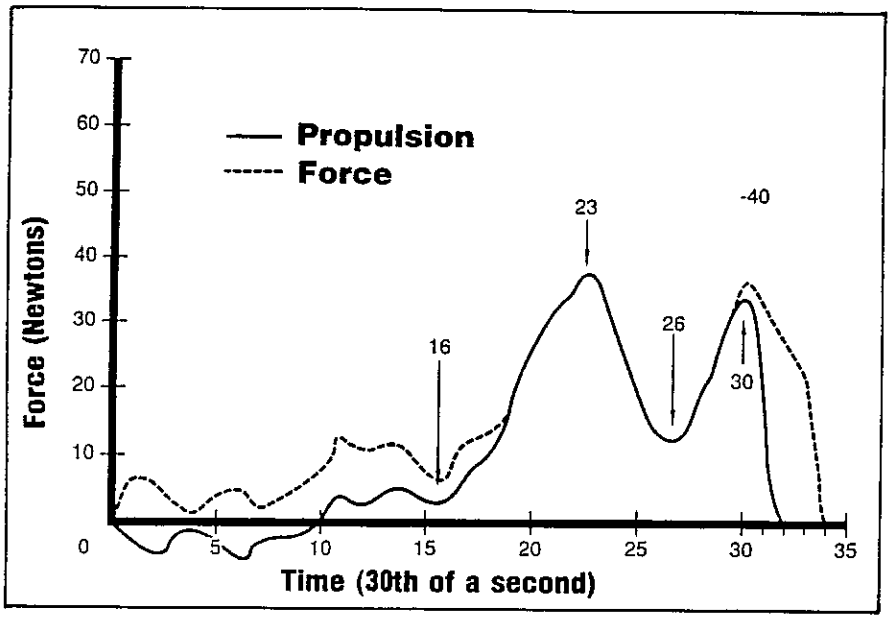
Now let's take a look at Swimmer B, another collegiate level freestyler. Again, we are looking at the force output of his right hand. Spend a few minutes looking at graph B—there is a lot to learn here.

As you can see, Swimmer B's stroke is 34 frames long or 34/30ths of a second, 31 percent longer than Swimmer A. As you know, the longer your stroke, the faster you can swim.

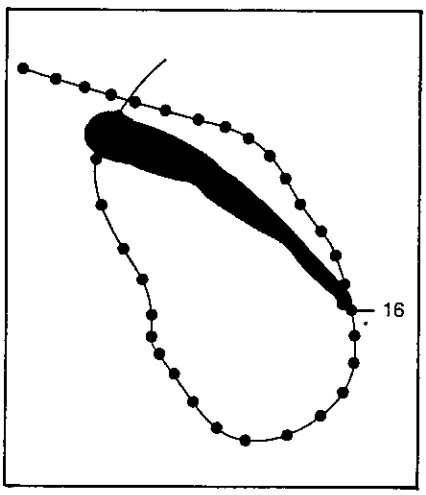
Negative propulsion for Swimmer B is 10 frames or 10/34ths or 29% of his stroke, about 2 percent longer than A's 27%. Obviously all swimmers, good or

Advice is seldom welcome. Those who need it most, like it least.
—Samuel Johnson

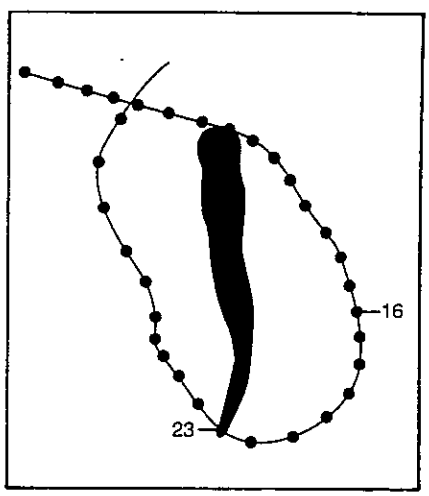
TO EXCUSE YOURSELF IS
TO ACCUSE YOURSELF.



Graph B



Drawing B1



Drawing B2

bad, could improve their speed by improving their front-end performance. (I believe this can be done by doing less work, not more. But that is a subject for another article.)

When we look at propulsive force above 20 Newtons, we see an enormous difference between the two swimmers. Frames 20 to 25 (insweep) and 28 through 33 (outsweep) are all above 20 Newtons for Swimmer B. This is a total of 10/30ths of a second or 29% of B's stroke cycle. This compares to A's over 20 Newton percentage of only 12%. B's over 20 Newton percentage is *242% greater* than Swimmer A's! In terms of absolute time it is *300%* greater! Can this guy produce power! Notice also how Swimmer B's total force production and propulsion force are almost identical during this power production part of his stroke. This indicates that he is very efficient during his stroke. Swimmer B is both powerful and efficient!

So, what is Swimmer B's secret? Is he using his shoulder muscles instead of his triceps? Is this why he is so efficient? Let's see.

Illustration B[1] shows the right arm at frame 16, the beginning of his first and largest power surge. Illustration B[2] shows his arm at frame 23, the point of his maximum power output for his entire stroke. As you can see, his arm changes from 15° to 85° in relationship to his trunk, a change of 70°, or 10° per frame. Is this why he produces so much power?

The answer has to be yes, for A changes his arm by 10° between frames 5 through 15 (or 1 percent per frame) during which his power output is very small.

Perhaps, you say, he is very strong in this particular range. In fact, this swimmer is measurably weaker than Swimmer A as far as strength in the arm is concerned.

Perhaps his hand pitch is different, you say. Actually, they are very similar. So what is it? What is B's secret?

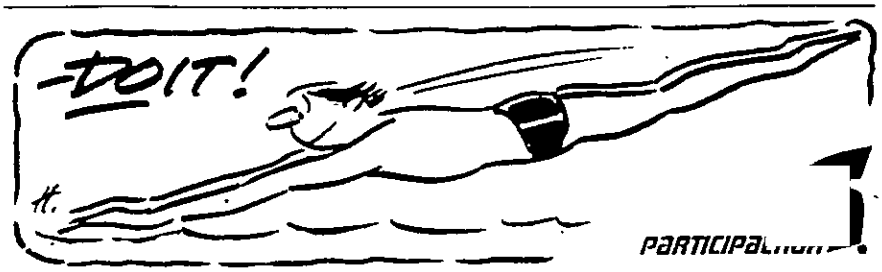
B's secret is the secret to faster swimming for every swimmer. It is the way that you can make use of that big engine you've been dragging through the water.

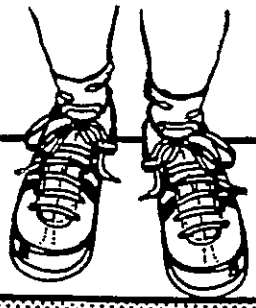
The difference between Swimmer A and Swimmer B is that Swimmer B *starts* his hip rotation much earlier in his stroke cycle than Swimmer A. Swimmer A starts his hip rotation at frame 18, or about 70 percent of the way through his stroke cycle. Swimmer B, on the other hand, starts *his* hip rotation at frame 16, when his hand is only 47 percent through his stroke cycle.

But if you look at the position of the arm at the beginning of hip rotation, you can see an even more dramatic difference between Swimmers A and B. Swimmer A starts his hip rotation at the same place most good swimmers do—when the arm is at 90° to the trunk. Poor swimmers do it even later! Swimmer B, how-

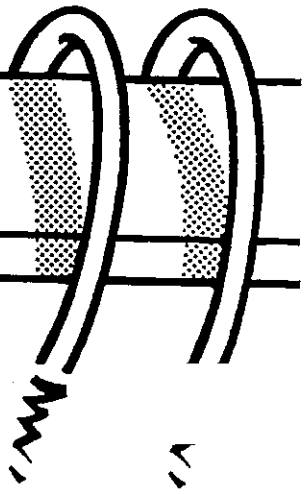
Stroke Variable	Swimmer A	Swimmer B
Stroke Length (1/30ths of a second)	26	34
Frames Negative Propulsion (1/30th second)	7	10
Percentage Negative Propulsion	27%	29%
Frames over 20 Newtons	3	10
Percentage of 20 Newton Plus Propulsion	12%	29%
Arm angle at Inception at Hip Rotation	90	15
Over 20 Newtons on Insweep?	NO	YES
Over 20 Newtons on Outsweep?	YES	YES

Table C





The Secret to Freestyle Speed



(REPRINTED FROM "SWIM" MAGAZINE SEPT-OCT 1989)

In our last article, we presented a revolutionary new analysis of the freestyle stroke. In today's article, we continue our analysis—sharing with what we consider the single greatest insight into freestyle swimming since Counsilman's discovery of lift propulsion in swimming.

In the "old days," swimmers were taught to put their hand into the water and *pull* their hand back, *pushing* water back so they could propel themselves forward. Actually, the "old" days are still with us. During my workout the other day, I watched in amazement as a well-intentioned young man taught a group of small children to swim by pulling and pushing. I wondered if he realized the life-long bad habits he was instilling in those kids! If we had applied our *mechanical* discoveries as readily as we have applied our *biomechanical* discoveries, we would still be traveling around by horse and paddle wheel teamer.

Our young instructor was teaching his

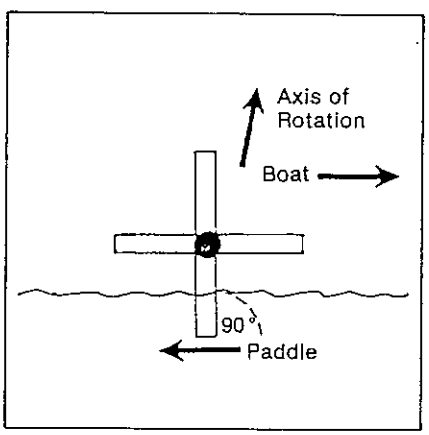


Illustration 1

Bob Prichard

charges to swim like a paddle wheel steamer (illustration 1)—dipping their hands (paddles) into the water and *pulling* and *pushing* the water back.

Of course we don't use paddle wheels any more—they are slow and inefficient—just like the swimmers who imitate them. Once man discovered the propeller was faster than the paddle wheel, everybody changed over to the new design (illustration 2).

Years ago, Counsilman discovered that great swimmers swim more like a propeller—*sculling* the water at oblique angles to the direction of travel of their bodies. One can only hope that the day will come when children are taught to propel rather than to paddle. Counsilman made his discovery by studying the hand pitch of swimmers under water. Unfortunately, he set a precedent that every other biomechanist has followed slavishly—to the point where scientists and swimmers alike concentrate almost exclusively on the hands.

•

As we pointed out in our last article, boat owners are not as slow as swimmers and scientists. If they want a faster boat, they just put in a bigger engine. They don't spend endless hours concentrating on propeller pitch and design.

We could do well to imitate boat owners if we want to go faster—just drop in a bigger engine. The truth is, we all have a bigger engine. We just don't use it because we don't know that we have it.

Some have tried to get a bigger engine by building up the shoulder and arm muscles by using paddles, swim benches and weights. The terrible thing about these devices is that they *do work!* By successfully increasing swim speed, they only further draw attention away from the biggest engine of all—the muscles of the hips and trunk (illustration 3).

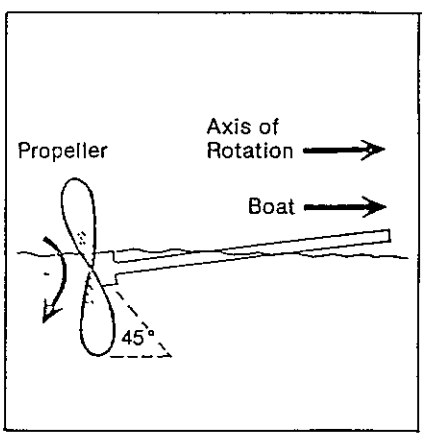


Illustration 2

"People who can master the sensory experience of how the body relates to space seem to be the ones who feel most passionately about their sport."

—Janet Ely-Lagourgue, Olympic diving coach

Deadline for contributions for next issue: November 1st.

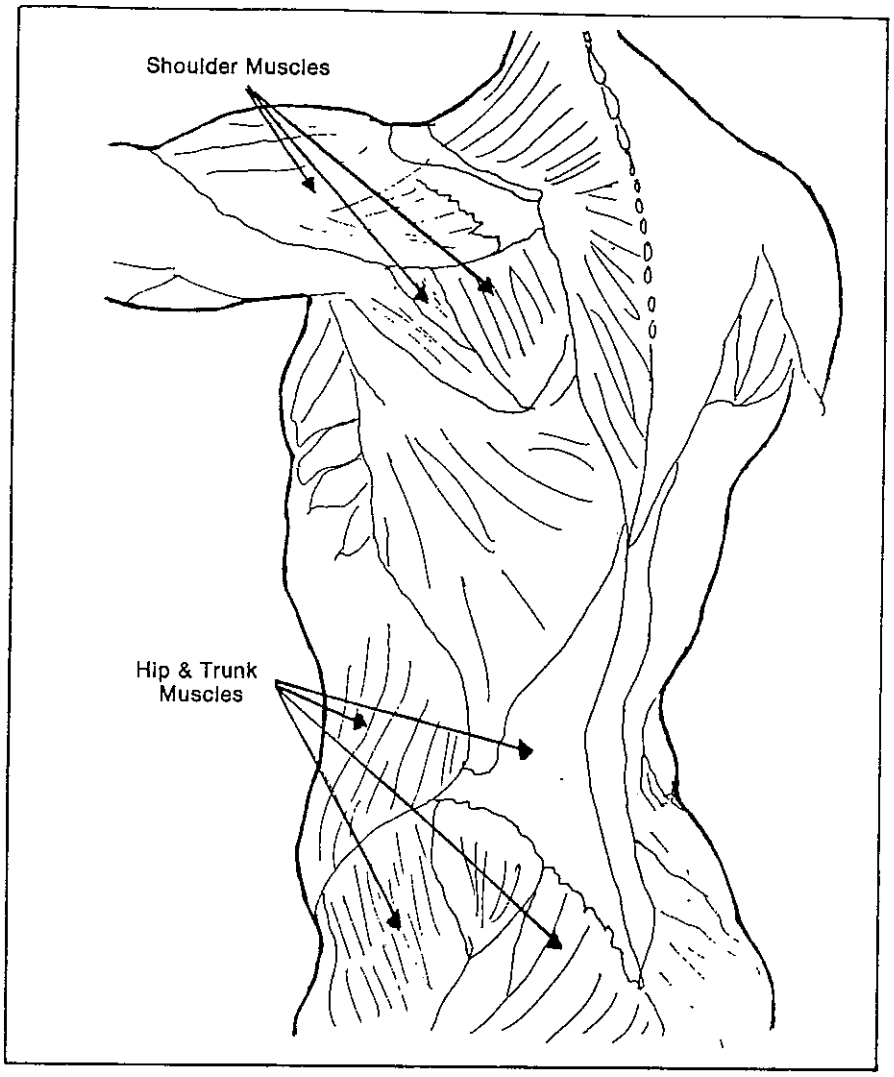


Illustration 3

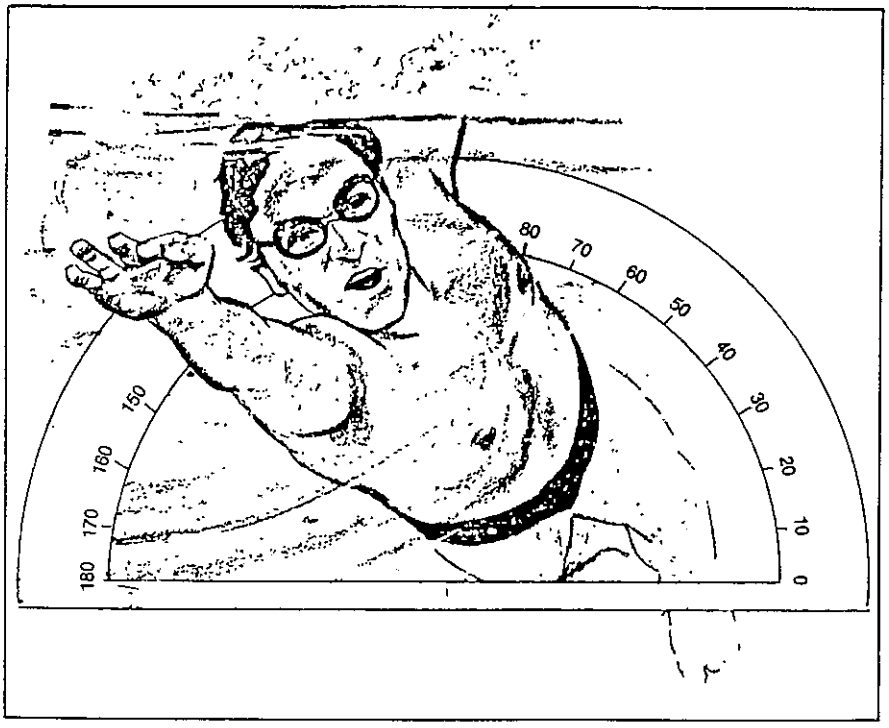


Illustration 4

The Carbohydrate Connection

The latest research suggests that carbohydrate "backloading" may be more effective than carbo-loading, since starches taken in *after* intense exercise may be better absorbed by the body than those eaten ahead of time. "The body seems to absorb carbohydrates more efficiently within the first half hour after exercise than it does later on," says Judy Nelson, a nutritionist at the U.S. Olympic Training Center in Colorado Springs, CO. Even for the average fitness buff, then, the time that's most helpful to eat a piece of fruit or to consume a few rice cakes may be *after* aerobics class, not before.

As you can see, the muscles of the hips and trunk are much bigger than the muscles of the arms and shoulders. Bigger—and as a result—much stronger. Three times stronger, in fact. Ask a boat owne if he could go faster with a new prop c an engine three times more powerful and he will always pick the bigger engine. The reason why swimmers don't think the same way is because everyone has been concentrating exclusively on the hands and arms (propellers), ignoring the big engine (hips).

In our last article, we started to measure the role of the hips in swimming by measuring the degree of rotation. We found that elite swimmers rotate a full 60 degrees to each side (illustration 4) during their freestyle, regardless of whether they are sprinters such as Matt Biondi or distance swimmers like Janet Evans.

Today, we are going to further measure the use of the hips in swimming by comparing the stroke mechanics of tw swimmers. By examining the propulsive force generated by these two swimmers' hands, we will share with you the greatest discovery in swimming since Counsilman's propeller insight.

Graph A shows the amount of force (dotted line) and propulsive force (solid line) generated by the right hand of Swimmer A. Let's spend a little time looking at this graph—it has a lot to show us.

These measurements were made with the use of underwater videotape. The modern video recorder is a wonderful measuring device. Since each frame is 1/30th of a second, we can measure the time Swimmer A has his hand in the

UNLESS MY LUNGS BURN AND I CAN HARDLY DRAG MYSELF FROM THE POOL, I KNOW I HAVE NOT HAD A WORKOUT. (MURRAY ROSE)

At a recent conference on Physical Activity, Fitness and Health (Toronto, May 1992), Dr. Larry Wolfe presented some more precise guidelines for exercise intensity during pregnancy. A summary is given below.

(1) Make sure swimmers are healthy.

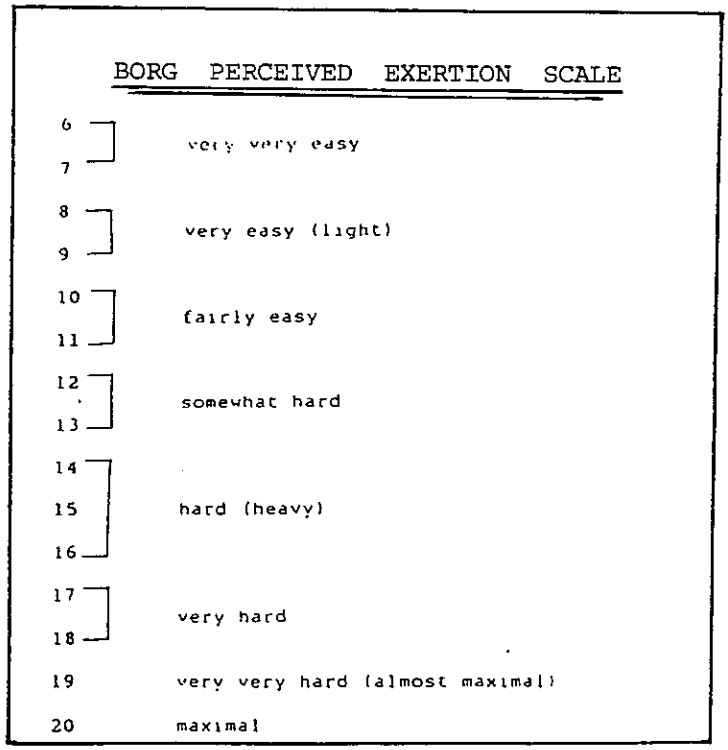
(2) Most healthy, normal women can exercise safely up to heartrate of 140 beats per minute.

(3) They can exercise up to 25 minutes.

(4) Heart Rates Suggestions:

AGE	EXERCISE HEART RATE
Less than 20	140 - 160
20-29	135 - 155
30-39	130 - 150
Over 40	125 - 145

(5) Use the Borg Scale of perceived exertion (as listed) Should be in the range of 12 - 14, i.e. ask the swimmer to rate how hard they find the swimming at the greatest effort.



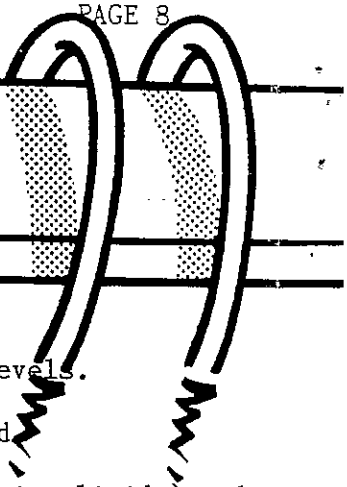
Further Reference: White 7, "Swimming for Two" The Physician and Sportsmedicine Vol. 20, no. 5, May 1992.

REMEMBER: Be prudent and keep to the officially recommended guidelines.

THERE IS ONLY ONE THING IS THE WORLD WORSE THAN BEING TALKED ABOUT AND THIS IS NOT BEING TALKED ABOUT. (OSCAR WILDE)

EAT A LIVE TOAD THE FIRST THING IN THE MORNING, AND NOTHING WORSE WILL HAPPEN TO YOU THE REST OF THE DAY!

SWIMMING AND CHOLESTEROL RATIOS



This is a story for those who keep a close watch on their Cholesterol levels.

High cholesterol levels are a known danger sign and raise the likelihood of Coronary Heart Disease. However, doctors tell us that there are three types of Cholesterol LDL (low density lipids), VLDL (Very low density lipids) and HDL (high density lipids) and that the amount of HDL is a very important measurement. In simple terms it is bad if your cholesterol is too high in the LDLs and too low in the HDLs.

This is usually expressed in an "HDL fraction" i.e. a fraction of total cholesterol and ideally it should be above 0.9. The desired fractions for the two low density lipids are LDL 4.0 and VLDL 0.5.

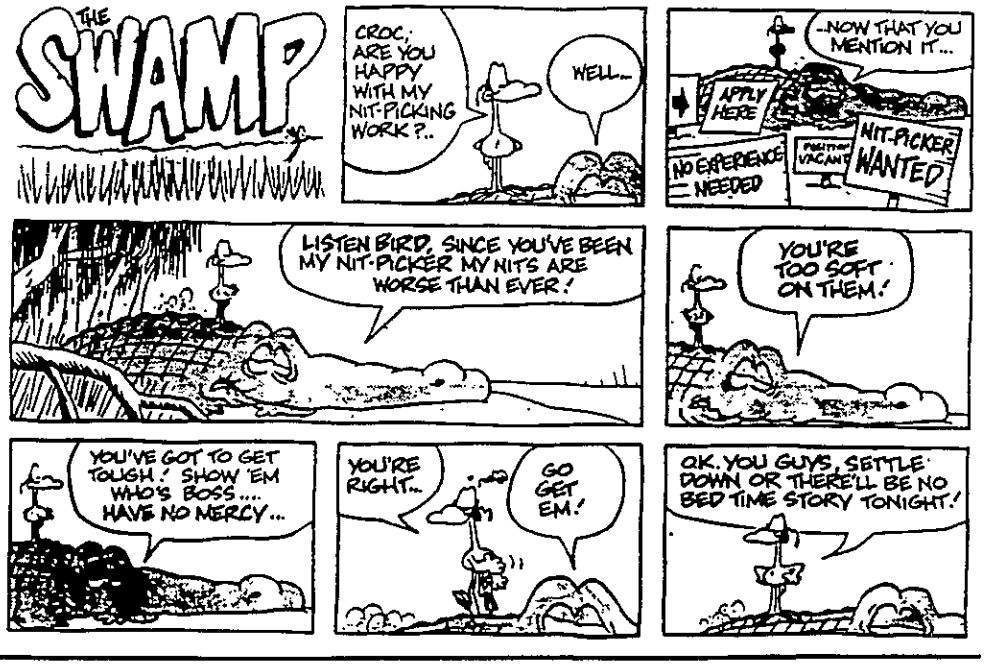
Now as all cholesterol watchers know well it is very hard to keep the total cholesterol down (it should be below 5.5). Here is the good news. Regular exercise will keep the HDL fraction up and exercise does not need to be very vigorous.

An AUSSI member who has Coronary Heart Disease and is now recovering from a bypass operation found that his HDL fraction was down to .45 in July 1990 (it should have been above .9). He started swimming again in November 1990 and has slowly increase the work done each session up to around 2.5 to 3K. All of this is done with flippers on and at a very slow rate keeping the heart rate down to around 120 to 130 BPM.

The result was that in a test in January 1992 his HDL fraction was up to 1.1 which is a very good result.

This indicates that the regular low intensity exercise of AUSSI swimming not only improves muscle tone and aerobic fitness it also helps to get the HDL fraction up where it should be.

Exercise really is good for you in more ways than one. There are people in AUSSI who swim for reasons other than improving their times and winning gold medals. Some are swimming to stay alive.



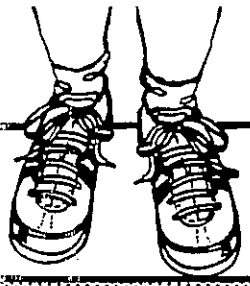
Cont. from Page 4

Banned substances are contained in medicines which may be prescribed by doctors, but can be found in over the counter preparations which can be purchased without a prescription at a pharmacy or supermarket.

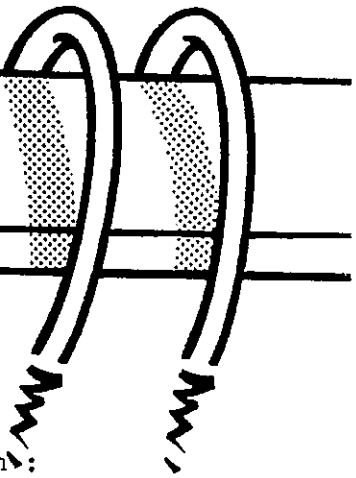
If you have any doubt about what you are taking then ask your doctor.

If he is unsure you can contact:
Dr Spinks (043) 282811
OR
the Drugs in Sport Hotline
008 020506

Dr Russell Spinks



CLUB PROFILE : UNI WAHOOS



THE CLUB

The Wahoos had their humble beginnings back in March 1987 when a small group od five, led by Allan Humphries and Wal Smith, formed the club at the Queensland University Pool. The names comes from a sleek, fast fish: the "WAHOO". By 1988 the club had 60 members and now we have grown to 104! The majority of whom are in the younger (??) age groups, 24 - 45.

The club is run by a volunteer committee, and it is people like Mary-Jane Smith, John Smerdon and Cathy McNamara who do a fantastic job doing just about everything.

Our swimmers are very active on the carnival scene, especially in open water swims. The Wahoos have won the Sunshine Coast challenge relay and the Robina Lake swim for the past three years. Our own Wahoo carnival is a major date on the swimming calendar and we have never let the Sheffield Shield for that carnival out of our hands. Wahoo!!

THE COACH

This is my second season as the club first "official" coach, and this is my first coaching position. I was only 19 when I started, so I was the only one not eligible to join masters swimming. I originally started just to work with the beginners in lane 1 with stroke correction, but things have taken off from there and I now coach the whole squad. I am a full-time uni student and an even more full-time modern pentathlete.

THE TRAINING

The Wahoos train all year round, at the uni pool in summer and at the Valley pool in winter. Three sessions a week are offered : Monday and Wednesday evenings from 6.30 PM and Saturday morning from 8.00 AM. The training sessions are well attended, with around 40 - 50 people there each session. We have four lanes graded according to ability, with the swimmers in lane one swimming around 1000m a session up to the lane four demons who ...er around 3500m.

The club caters for the widest possible range of abilities and motives, from the purely social swimmer who needs a chat after each lap to triathletes to highly competitive masters swimmers.

The training is based on a yearly cycle, beginning with a preparation phase of technique work in May. From June to August the emphasis is on building endurance and aerobic swimming. September to November is the "specialty" phase focusing on intense, quality swimming. Then December to March is the "competition" phase, building up to several big carnivals.

My main aim with the workouts is variety, swimming has got to be fun so we use all the strokes, drills and kicks to mix it up as much as possible. I put a big emphasis on body position and technique, so we do a lot of drills and kicking without a board (which they hate!). For some reason they love using pull buoys, so we do quite a bit of pull work as well.

I think most masters programmes are very lacking in speedwork, they tend to go to the pool and plod up and down at the same pace for 20 laps and go home. And then when it comes times to race, their bodies do not know how to swim fast. So we do quite a lot of sprint work, with lots of rest between each repetition (even as short as 10m sprints). On the last Monday of each month we have a carnival night, with about 5 different races to get used to racing and record times. To see your times improving is a great source of motivation.

Saturdays are always very casual, we write the session up on a board and everyone works through it in their own time and then lounges around by the pool for the morning, reading the papers and catching up on the gossip.

THE SOCIALS

Just as important as the training (if not more so) the club is always having get - togethers and socials. Wal often puts the barbie on after training in the evening, or there are croissants for breakfast on Saturday morning. Two highlights of the year are wild weekends at the coast for the Gold Coast half marathon and the Noosa triathlon. Other events include a trip to the ballet, theatre, movies, restaurants, the infamous Wahoo CANNI-BALL, pasta nights, drinks at the Kitten Club, beer and pizzas after training, tat's race day and much much more.

This all adds up to a great group of people enjoying a healthy lifestyle and having a fantastic time doing it. Training is so much easier if it is done in a fun atmosphere, and that is what the Wahoos have created. The one thing we all have in common is that we enjoy swimming.

Paul Christensen

PREGNANCY AND SWIMMING

The change in attitude towards women training throughou pregnancy puts extra responsibility on the coach.

There are guidelines put out by the American College of Sports Medicine:

"Guide for Exercise Testing and Prescription"
(Lea & Febiger, 1991)

Briefly they state: (p. 182)

(1) the appropriate frequency of exercise is 3 - 5 times per week.

(2) Duration of 15 - 30 minutes are usually well tolerated.

(3) It is important to avoid exposing the foetus to prolonged hypoxic or thermal stresses, therefore larger duration exercise is not recommended.

(4) A target intensity (heart rate) of approaching 120 beats to 140 beats per minute, or a Borg Scale of 12 or 14.

They list contraindications for exercise and the signs and symptoms to discontinue.

These guidelines apply only to normal healthy women.

(REPRINTED FROM THE WA COACHING NEWSLETTER, JULY 1992)

YOU ARE NOT OLD UNTIL IT TAKES YOU LONGER TO REST UP THAN IT DOES TO GET TIRED. (DR PHONG ALLEN)

AGE, CUNNING, DECEIT AND TREACHERY CAN DEFEAT YOUTH AND SKILL.

BE REALISTIC --- DEMAND THE IMPOSSIBLE!